ANNUAL MAY 1898.

MIND AND HAND.

INDUSTRIAL TRAINING SCHOOL.

INDIANAPOLIS, IND.

WM. B. BURFORD, PRINTER, INDIANAPOLIS.

DEPOSIT YOUR SAVINGS

....WITH THE....

INDIANA TRUST COMPANY

CAPITAL, - - - - -	$1,000,000
LIABILITY OF STOCKHOLDERS, - - -	1,000,000
TOTAL SECURITY FOR DEPOSITS, - -	2,000,000

This Company will pay you 4 per cent. interest, compounded semi-annually, on deposits of $1 and upward.

You can withdraw the full amount of your deposit and interest without any deductions whatever.

NO FINES.
NO EXPENSE FUND.
NO WITHDRAWAL FEES.

OFFICES: INDIANA TRUST BUILDING,
Corner Washington Street and Virginia Avenue.

UNITED STATES DEPOSITORY.

...The..

Merchants' National Bank.

Indianapolis, Ind.

Capital, - - -	$1,000,000
Surplus Fund, - -	100,000

OFFICERS

J. P. FRENZEL, PRESIDENT.
O. N. FRENZEL, VICE-PRESIDENT.
FRED FAHNLEY, 2D VICE-PRESIDENT.
O. F. FRENZEL, CASHIER.

Frenzel Bros.

No. 3 W. Washington Street,

(MERCHANTS' NATIONAL BANK.)

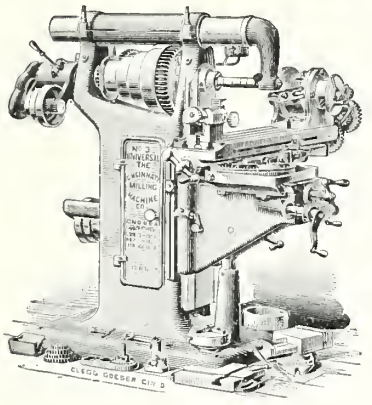
Passage Tickets,
Foreign Drafts and
Money Orders

Issued on All Parts of the World.

CLEMENS VONNEGUT . . .

342 TO 348 EAST WASHINGTON STREET,

Will remove to 120 to 124 East Washington Street about October 1st.



Metal and Woodworking Machinery

BUILDERS' AND MANUFACTURERS' SUPPLIES.

TOOLS OF EVERY DESCRIPTION.

TELEPHONES 589 AND 1989.

SPECIAL AGENTS FOR

Standard Twist Drills and Reamers.
Norton Emery Wheels.
All Wrought-Steel Pulleys.
Cincinnati Milling Machines.
Lodge & Shipley Engine Lathes.
W. F. & John Barnes Drills.

SHAW COMPRESSION SHAFT COUPLINGS, SHAFTINGS, HANGERS, ETC.

High Class Photo-Portraiture

THE KITCHELL RESIDENCE STUDIO,

1126 North Pennsylvania Street,
INDIANAPOLIS.

The Indianapolis News in its isssue of April 20, 1898, states, "The official catalogue of the Exhibition of Arts and Crafts of the High School makes special mention and gives first place in the photographic department to the work from the Kitchell Residence Studio. Aside from this testimonial, if any doubt longer remains in the minds of the public as to which studio leads in the matter of superior work, that doubt would be speedily removed after comparing the exhibits of the different studios; that from Mr. Kitchell's is so strikingly superior that it is ***entirely alone*** in the highest class." Similar notices in Journal and Sentinel.

This Studio was exclusively appointed this year to photograph the classes at Indiana Medical College, Indiana Law School, Butler College, Girls Classical School etc., etc.

SPECIAL RATES TO STUDENTS.

The Secret of It.

THE secret of it is this: Twenty thousand former students now in paying situations—some as trusty employes, some at the heads of mercantile concerns and professional lines—stand ready to help our graduates into desirable places. For nearly half a century the Indianapolis Business University has been winning its way into the friendship and confidence of the business world, and our students get the advantage of all this.

School all summer. Electric Fans. Bookkeeping, Shorthand, Typewriting, Banking, Business Practice. Day and evening school. Enter any time. Terms easy. Call. Telephone 499.

Indianapolis Business University,

When Building. ☙ Take Elevator.

Saffell & Geider,

DEALERS IN

Staple and Fancy **GROCERIES**

....Fruits and Vegetables....

FIRST-CLASS MEAT MARKET.

409 AND 411 MADISON AVENUE,

INDIANAPOLIS, INDIANA.

Cleveland BICYCLES

Model 39 and 40, **$75**

Model 35 and 36, **$50**

Model 37 and 38, **$65**

And a few Models 1 and 2 left at $35.

THE EASIEST RUNNING BICYCLES MADE

MUELLER & WATSON

307 Massachusetts Ave.
208 East New York St.

Telephone No. 2219. ☙ Official L. A. W. Repair Shop.

Digitized by the Internet Archive
in 2012 with funding from
LYRASIS Members and Sloan Foundation

http://archive.org/details/mindhandmay189841unse

INDUSTRIAL TRAINING SCHOOL.

MIND AND HAND.

"EDUCATION IS THE CHEAP DEFENSE OF NATIONS."—BURKE.

Vol. IV. No. 1. INDIANAPOLIS, IND. May 1898.

MIND AND HAND.

Published in the interests of intellectual and manual education, by the students of The Industrial Training School.

BOARD OF MANAGERS.

BEN MINOR, President. MARY ROBINSON, Vice-Pres.
ETHEL BURKE, Secretary. WALTER DUNCAN, Treasurer.
ADA DICKHUT, FRANCES CAHILL, CLARENCE SMITH,
ICA CAMPBELL, ERNEST WALKER,
BURTON RAFFENSBERGER, HARRY CEDERHOLM,
JUDSON COLGAN.

EDITORIAL STAFF.

ARTHUR STANLRY MENG - - - Editor-in-Chief.
IRVING BLUE - - - - - - - Literary Editor.
WILL BALLARD - - - - - - Technical Editor.
RODNEY HITT - - - - - - - Scientific Editor.
WALTER DUNCAN - - - - - - Art Editor.
WILL GUMBINSKY - - - - - Miscellaneous Editor.

. . EDITORIAL . .

ONE year ago our ANNUAL was published, wherein the year's work was reviewed, and the various departments entertainingly treated. Again we appear, with renewed enthusiasm and vigor. Since that time the work has been extended, and the curriculum enlarged. Additions have been made to the faculty, while the enrollment of students exceeds one thousand. Though in point of time an experiment, the methods employed, and the work accomplished record for us unquestioned success. So our institution affords a study to educators.

How, each day, transitions are made from the study of poetry to the pounding of iron, from the inflections of Greek to the foundry, from the study of proportion in art to the mechanism of the shop, is certainly of interest to instructors and "the people" alike.

And so we invite you to pass down the corridors, enter the recitation rooms, listen to the "clang of the hammer on the anvil," or perchance, the cadences of song —in short, go where it pleases you, or where this little book may direct.

A. M.

SINCE our last visit, some changes have taken place. During the year, some have left our "Alma Mater" for other fields. Indeed, some have even adopted other "Alma Maters," for colleges all over our land have opened their doors to Industrial Training School graduates. Some have entered business, some have joined the ranks of the city teachers; others are beneath the flag in our country's service; and to these we send our greeting. And some who read our last Annual have "wrapped the drapery of their couches about them" for their last and their eternal sleep. These we loved, and these we can not forget.

WE would call attention to our friends who have taken this opportunity to inform the public of their whereabouts, their business and their terms. We as well assure them of a more material expression of our appreciation. On the other hand, it is not pleasant to note that those who have profited financially by our occasional requisites should decline to fill some space on our advertisement pages. We can only urge our readers to patronize those who patronize us.

MANY, perhaps, because of the very name of the institution, have the idea that the Industrial Training School is strictly a technical school, wholly devoted to the training of the hand in some one trade or another.

We are sorry that such a false idea exists; and to right a wrong conception which may be prevalent in the minds of some we invite your careful attention to our following literary column.

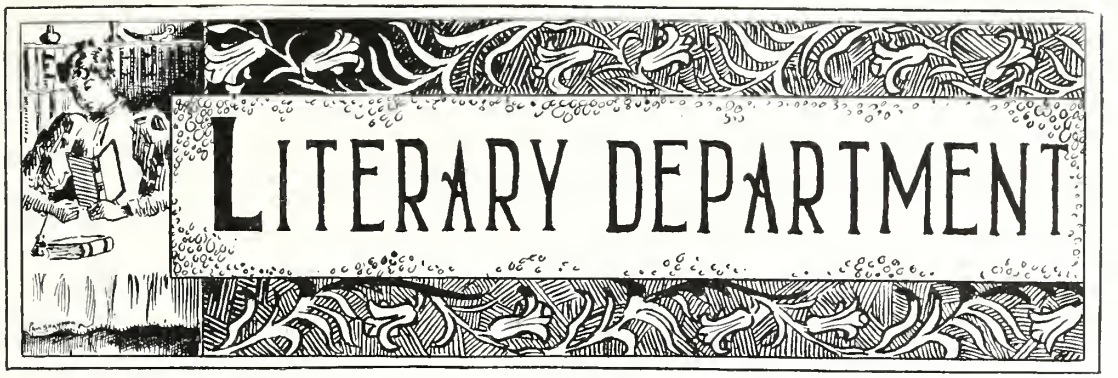
English, as a study, is receiving special attention in our school, and we feel that the work done in this line is of the highest quality. Examining our course of study, you will find that eight half-years are given to the study of English literature, and we have tried to give to the public a fair example of the work done in each of these grades. Truly the literary work is not beyond criticism, yet we trust that, before passing a severe judgment, you will notice the grade at the bottom of the article, and remember that some of the work is strictly impromptu. It is unfair to expect 12A work from 9B pupils, or even college work from senior pupils, yet as an example of high school work we feel justified in believing that our literary column will meet with approval.

IRVING BLUE.

OUR facilities for the art work are apparent in the illustrations, the etchings, and the design on the cover. We feel justly proud of the quality of the drawings and the finish of the design. We believe no little talent finds expression in the pictures. Art study holds an important position in our course. The students pursuing this line of work, tell, by the work they do, of the care taken and of the standard reached.

The photographs from which the half-tones are made, were taken by Mr Bass.

BICYCLE ROOM.



STEAMER SKETCHES.

THE hoarse whistle shrieked discordantly once or twice, and the boat puffed heavily out. In the western sky was a curious splotch of luminous carmine edged by a streak of gold and checkered by little drifts of greenish cloud. Against this the houses rose in grey outline. Little ruffles of dark water outlined in narrow white undulated near the shore.

There was a constant hum on deck. At one end of the boat was a group of laughing young people, the girls with cheeks tinged by the sharp air, the men with interesting, covered baskets, which they set in conspicuous places. These were very attractive to an inquisitive youngster. He sidled craftily up, and when he thought no one was looking, gingerly raised the top of one of them. When he saw within only a loose pile of silvery fish, he was disappointed, but perseveringly tried one basket after another until he struck a large channel catfish, which was particularly fascinating to him. Its little wicked eyes stared so knowingly that he let down the lid with astounding promptness. Curiosity getting the better of him, he opened it a little and peeped cautiously in. As the fish did not seem particularly aggressive, he poked it gently, grasping the cover with the other hand so he could close the basket in case the shiny black thing jumped out at him. Growing bolder he let go of the cover altogether, and with both hands grasped the wicked eyed fish by the tail. But it was so cold and slipped so dexterously out of his fingers that he decided close contact was not agreeable. So he talked insultingly to it, emphasizing his remarks with an occasional poke. He kept up a one-sided conversation for some time, until one of the men saw him, and, with a "Here, youngster; get out of this," handed him over to his anxious father. As he was carried unwillingly off, a murmur of "Nasty thing wit' black eyes" floated back across the boat.

Then, for the fiftieth time, the owner of the fish began to tell how he had set his line and waited for hours, and so on, at great length, until he found the girl he was talking to was greatly occupied with an enterprising spider, who was airily spinning a long thread near his ear. At which the young man was very indignant, and did not know which to blame most, the spider for daring to come near him, or the girl for daring to laugh at him.

Up in the cabin, a religiously disposed group was singing gospel hymns, while a gentleman, who couldn't stay out because of his asthma and couldn't stay in because of their singing, walked frowning back and forth, saying uncomplimentary things between his teeth. He glared threateningly at the unconscious vocalists. A wee mite of a girl in the corner watched him anxiously. She had been trying to con-

sole the little boy who had been separated from his fascinating fish. But he had repelled all advances and kept gazing with

longing eyes towards the cabin door. The little girl slipped from the corner and looked admiringly at the growling gentleman. Cautiously she followed him about, treading his impatient step, rubbing her dimpled hands, and frowning deeply after her model. She twisted her rosy mouth and shook her curls in perfect imitation. Suddenly the gentleman turned and caught her. Just as suddenly she observed the absorbing nature of the red plush on the cabin chairs. It may have been the reflection that tinted her wild rose cheeks with a deeper shade.

As the later night came on, the children disappeared to nestle in mother arms. But outside the cabin a tall, fair man in black paced to and fro, holding in his awkward arms a little, loving heap of baby boyhood. The little, close-shorn head, so like the father's, rested easily on the broad shoulder. The rounded cheek pressed as hard on the rough coat sleeve as it might have done on the softer texture of a woman's gown. The tall Swede had kept apart from the other passengers, and his miniature reproduction had kept close to his side. The blue eyes of the little Swede had followed the inquisitive youngster wonderingly, but he made no advances. And he blushed pink to the roots of his close-cropped curls when the little girl offered him a bite of some kind of sticky sweetness. Sometimes he lisped a few words of broken Swedish to his father; but, for the most part, he was content to creep within the strong arm and, from that place of safety, view the wonderful people on the boat.

Some uneasy thought caused him to stir and open his soft eyes. He smiled sleepily into the face above him. But the hoarse, shrieking whistle of the boat roused him from half-consciousness into wide-awake life. The steamer puffed slowly, whistled again, and stopped. The lights and noises of a city surrounded them. The boat cleared itself of many people. The little Swede saw the inquisitive youngster staring surprisedly at the landing as he was carried down upon his father's shoulder. The vocalists left in a sleepy crowd, with the group of pretty girls and men with covered baskets stepping wearily behind them. When the boat started again, the decks were nearly deserted.

The tall Swede carried the boy to the wheel of the steamer, and they watched the water in silence. From its dark, frowning depths rose a mysterious whiteness of showering spray, glistening faintly in the misty gray. Now and then it caught the light of the stars and sparkled coldly, spilling in liquid silver as it leaped from the wheel. The little Swede watched it with sleepy admiration. His father looked, unseeing, across the river and

beyond the impenetrable darkness. Then he resumed his weary pacing, and the little boy closed his wandering eyes.

On the lower deck was a group of men. Their faces were lit up by the yellow light of a lamp, and wreaths of blue smoke twined sinuously overhead. The clicking of dice and a low counting, with occasionally a loud laugh, were all the sounds to be heard. One of the men pulled a pack of worn cards from his pocket and commenced dealing them rapidly out. "What's that?" he queried, suddenly. The men listened. "Somebody riding the waves," suggested one of the group, as an indistinct plash of oars was heard. Voices floated across the water. "Them's for Jim," cried a childish voice, as a huge bunch of fragrant water lilies and pale gold lotus was thrown over the railing. "My kid brother," said Jim, apologetically, as he picked up the dewy flowers. Half hidden by the larger blooms were gleams of vivid scarlet, graceful sprays of "prairie-fire." The men sniffed eagerly at the freshness of the mysterious blossoms.

"We're not home yet?" asked a recumbent figure hoarsely, as the boat commenced its excruciating whistle. "No," said another, gazing critically at the government lights that shone whitely on the indistinct shore; "a bridge signal, I guess." A huge mass of darkness loomed up before them. Its irregular string of red and green points of light broke as part of the mass revolved slowly and heavily until the boat could pass through. Beyond the bridge the city lights were plainly seen, even to distinguishing between the steely radiance of the arc light and the yellow tone of the gas. But a ten minutes' ride, and then a bump and an immediate confusion as the steamer touched the wharves.

VALENTIA EGAN.

"PIPPA PASSES."

In the village of Ascolo,
Many, many years ago,
When the old mill played the silkworm
With a murmur soft and low;
When a child-face at the window
Watched a child-face work within,
Then our Browning's little Pippa
Learned to labor, sing and spin.

Once, a day was given Pippa,
Only one, but all her own;
And the eastern sun rose smiling
Over meadows freshly mown;
Early woke our little Pippa,
Sweet and happy, bright and fair,
And her simple song of gladness
Rose upon the morning air.

And the dreamy pale-faced Poet
Heard, and changed his mournful lay;
Laid aside his worthless writing
Thus, to hear what she might say.
Down the dusty, winding roadway,
Singing as she went along,
Pippa cheered all them that heard her,
By her simple, happy song.

And the lovers that to Pippa
Seemed so happy in their love,
Changed, and saw its deeper meaning
As if by some power above;
And the men of proudest nature,
Rich and poor, both high and low,
Saw a meaning in her singing
Like a river's undertow.

When the cowslip 's turning yellow,
And the birds are in the trees;
When the air is full of fragrance
And the buzz of humming bees;
When the buds are full to bursting
And the brook creeps soft along,
It is then that little Pippa
Cheers the whole world with her song.

M. ETHEL BURKE,
11B, English.

I. T. S. CLASS, JAN. '98
Clark
Photo.

MILTON.

OF the three authors, Chaucer, Shakespeare and Milton, whom we have studied this term, Milton is, perhaps, the most interesting. He is not so simple as Chaucer, nor so thoroughly appreciative of human nature as Shakespeare, but in his choice of subject and manner of treatment he can not be surpassed.

His genius is undoubtedly at its height in "Paradise Lost." As it was not founded on any truth, on real history or legend, Milton's imagination was here drawn on to a great extent. Having undertaken a vast enterprise, he did not hesitate; and, witness the result: A book whose grandeur has never been equaled; a book which, though largely imaginative, is strangely consistent all the way through. The poet's phrasing is magnificent. His figures are bold but very apt, as can be seen from the following:

"What if the breath that kindled those grim fires,
Awaked, should blow them into sevenfold rage,
And plunge us in the flames? Or from above
Should intermitted vengeance arm again
His red right hand to plague us?"

The story is a harmonious mixture of classical myth and biblical event, with now and then an earthly touch which renders the whole charming. In the invocation of the Muse—

"Sing, heavenly Muse, that on the secret top
Of Oreb or of Sinai didst inspire
That shepherd, who first taught the chosen seed
In the beginning how the heavens and earth
Rose out of chaos."

This is aptly illustrated.

Milton has a peculiar way of inverting his clauses, whole sentences, in fact, which renders them exceedingly forcible.

Satan's appeal is masterly. Here we have a natural flow of words that is distinctly characteristic. We are brought face to face with the Evil One, not as some shadow lurking in the distance, but as a living being, a powerful, passionate being, the symbol of defiance:

"'Is this the region, this the soil, the clime,'
Said then the lost archangel, 'this the seat
That we must change for heaven? this mournful gloom
For that celestial light?'"

In this short quotation is one of the author's rare touches of pathos, strange though it may seem in its connection with Satan.

It is true there are some passages in the book which are not as good. They seem to have been studied, forced, and the result is rather monotonous. But these, however, are comparatively rare.

On the whole, from the study of this epic we get Milton's style as we could get it from no other one of his productions.

ANNA KAUTSKY, 12 B.

THE CHARACTER OF RICHARD I, AS PORTRAYED IN "IVANHOE" AND "THE TALISMAN."

SIR WALTER SCOTT is skillful in his choice of historical characters, and manages to weave into his romances some well known incidents in the life of national heroes.

The two stories, "Ivanhoe" and "The Talisman," may be called companion pieces, in that both deal with the life and character of Richard I, of England. Although Coeur de Lion is not the hero of either book, his deeds form a large portion of the action of both stories.

The disparity in the two pictures may doubtless be explained by the wide difference in the setting. The trouble with the Regent Prince John, of England, made Richard's arrival in England an occasion of great joy and thanksgiving. The attitude of the people brought out all the softer traits in the king's character. Therefore he is represented in "Ivanhoe" as a liberty-loving monarch, ready to raise his arm in

defense of the weak and helpless. He comes as a deliverer of the English people, and is set forth as a just and generous king. His strength and valor are devoted to the interests of his down trodden subjects. His noble treatment of his selfish brother, the Regent John, is evidence of his generous nature and gains for him the title of the "lion-hearted" for another reason than that of personal bravery.

The picture of Richard which is presented in "The Talisman" is not nearly so pleasing as that in "Ivanhoe." The jealous, savage nature of the man is distinctly brought out. He is no longer the strong, tender-hearted father of the people, but the rash and arrogant leader of fierce and unscrupulous warriors. Even here, however, with all his tyranny, the noble courage and fitful generosity of the man are in evidence.

Richard I is of that type of character formed by the blending of the Norman and Saxon races. He has the fiery courage of the Norman combined with the obstinacy of the Saxon. His impetuous nature he inherited from his Norman fathers, his perseverance and impatience of wrong-doing from the Saxon.

The two views of his character taken together form the ideal knight of the time, and we can easily see why the name, Richard the Lion-Hearted, of England, has become a synonym for all that is regarded as admirable by the English speaking people of the world.

STELLA DEAN, 11 B.

An Impromptu.

ONLY A TRAMP.

ONE warm day last summer several ladies were sitting on the lawn before a large house in one of our principal streets. Some were idly turning the leaves of magazines, some were talking, and all were trying to pass the afternoon in some way to keep from noticing the heat.

Presently a man came shuffling along the street and stopped hesitatingly at the gate. Then, seeing the ladies, he came slowly up the walk. Stepping before an elderly lady in the group, he took off his hat and said, in a low voice: "Won't you please give me a dime? I'm so——" But she looked up only long enough to say: "No," in a voice that permitted no remonstrance, and then resumed her interrupted conversation with another lady. He apparently did not have courage to ask any of the other ladies for alms, and was returning to the street, when a young girl, sitting somewhat apart from the rest, looked up from her book and asked him what he wanted with the dime. "To buy something to eat," he muttered, and was passing on, when she opened a jeweled purse which hung at her belt and gave him a quarter. "Thankee kindly, Miss," he said, as he passed on, and she noticed that tears stood in his eyes.

"Why did you do it?" asked several of the ladies. "Why, he's only a tramp." "Yes, indeed," said the elderly lady, who had refused his request. But before the girl could answer, every one was startled by a cry of horror.

Absorbed in their conversation, they had not noticed that the maid who had charge of a small child belonging to one of the ladies had left it for a few minutes. While the tramp was in the yard, the child had noticed the gate, which had been left unlatched, and had toddled out into the street. When the tramp left the yard, he noticed the child playing outside, and started toward it. Seeing him, it ran on, right in the path of a motor coming down the street at full speed. The tramp ran forward, grasped the child, and set it down beyond danger. He tried to get off the track, but fell directly in front of the

approaching car. As it passed over his body, several people saw the tragedy, and screamed; but it was too late. He was carefully carried away; and, as people looked at the still, white face, and the bruised hand still grasping the quarter, none thought to say, "He's only a tramp," for the tramp had become a hero.

MABEL WALTERS, 10 A English.

An Impromptu: Rapidity of Action.

THE FAST MAIL.

THE railway track lay gleaming in the sun. A faint singing noise came from the rails. Noticing this, I remarked to a companion, "Here she comes." Here

she came, indeed. In an instant the faint noise was a roar. A massive body of black, gleaming iron tore madly toward the town. On she came, swaying, pounding the rails in a mad endeavor to increase her speed. Gusts of blinding smoke rolled from the smokestack. Clouds of hissing steam issued from the straining cylinder-ports. The earth trembled; dust collected in her wake. A hoarse scream from the whistle, a clang from the bell, a glimpse of a toiling fireman, an engineer grasping the throttle, and the "Fast Mail" had passed.

WALTER NEWMAN, 10 A English.

AN APPARITION.

A FEW days ago, while walking along a country road north of the city, I met an apparition which exactly fitted my idea of Huckleberry Finn's father. As this specimen of humanity approached me I noticed that he was very tall; that the part of his visage which was not covered by a bristling beard or hidden by an old army hat was of an ashy paleness; that his head was set low between a pair of broad shoulders.

He wore an old blue coat, tattered and threadbare. His hands, which were thrust well forward in his trousers' pockets, worked automatically with each step. His legs were long and bowed, which was made more noticeable by the tightness of his old grey trousers. His shoes were very large, fastened with buckles, and at each step flattened a square foot of dust.

With a gruff "Howd'ye" he passed out of sight over a hill.

JOHN DOOLEY, 10B English.

"HER DARLING."

'TWAS in the month of June, when the flowers were out in all their pristine beauty, that my brother was riding on horseback through a shadowy wood, on the outskirts of Indianapolis. He had ridden some distance, when the path led in the direction of a river. He followed the path,

and just as it took a turn around a bend in the river, and where the water was the deepest, he heard some one crying as if in great distress. He discovered a young girl, wringing her hands and moaning in the most deplorable manner. He asked the reason of her grief and learned, between her sobs, that "her darling" had fallen into the river. Upon looking down the river, about four or five yards from the shore, he saw a little child. Its hands were raised above the water, while its little head bobbed up and down with every curve of the waves. He sprang from his horse, leaped into the water, and soon reached the little one. Carefully holding it above the water he made for the shore, and gently placed it in the arms of its distressed nurse. Tears were flowing down my brother's cheeks when he turned to take a last look at the dead child and the grief-stricken nurse. Just as he was bowing his departure his eyes fell full upon the face of the child, and judge of his surprise when he noticed that it was a doll with a china head. He turned for his horse and just caught a glimpse of him as he darted into the wood. He can not bear the sight of a doll since, and often declares, if ever he meets that girl he will politely inform her of the trouble that the rescuing of "her darling" cost him.

FLORENCE BOWLUS, 9 A Grade.

WOODWORKING SHOP.

A MEDAL OF HONOR.

FOR five weeks the men at the Stanford factory had been idle. They had struck for higher wages and had sworn among themselves not to go back to work until their demands had been granted.

For five weeks Mr. Stanford had refused the raise, and as he was a very obstinate man it would probably be a long time before he would comply with their demands. He owned that factory, he said, and he would pay the wages he thought necessary, and if the employes were dissatisfied they were at liberty to go elsewhere, as there were plenty of men who would gladly work for a dollar a day.

Day after day the men gathered about the factory door expecting to see a notice to resume work, and day after day they had been disappointed and returned to their families empty-handed. Mr. Stanford was too proud to be dictated to by a set of ignorant laborers.

By this time most of the men would gladly have given up and gone back under the old pay, but they were restrained from doing so by the fiery speeches and denunciations of one of their number, Sam Maguire.

It was Friday night, and a cold, piercing wind blew over the little town of starving laborers. The streets were all deserted save for one solitary pedestrian, who was plodding along with his head down. He hurried on until he reached the home of Mr. Stanford. He was admitted, and a light was seen in the study. The light burned steadily until after midnight; then the mysterious figure came out into the darkness and hurried down the street.

The next day the men were seen crowding about the factory door reading the following notice:

> "Mr. Stanford has learned the truth of the case in an interview with a certain gentleman, and has decided to withdraw his objections to the requests of his employes. The employes will resume work on the following Monday at the wages desired."

In an instant all their anger and despair was turned to joy, and with shouts and laughter they rushed to Mr. Stanford's home and stood half the day cheering their employer.

Many inquiries were made for the gentleman who had braved Mr. Stanford's anger for their sake, but they were all in vain. At the end of the first week each man contributed a small sum and a silver medal was given to Mr. Stanford with the instructions that the mysterious gentleman should wear it as a token of their gratitude. The medal bore the words: "To a Gentleman. From His Friends."

* * * * *

Two years had elapsed since the strike. It was the noon hour, and the men were sitting in a circle telling stories and joking.

"Here comes Larry," said one. "Let's get him to tell us a story."

"I bet he'll tell about the time he saw Queen Victoria crowned," growled another. "I know I've heard that story fifty times if I've heard it once."

"Let's see if he does."

A little old man tottered up and took his seat in the circle of men.

"Telling stories, gentlemen? Don't let me disturb you."

"We've all run out of lies, Larry. You tell us some of yours," said one young fellow.

"I never tell lies, my young man," Larry answered gravely; "but I will tell you—let me see—suppose I tell you about the coronation of the Queen?"

The men exchanged quick glances and could hardly suppress their mirth.

JUNE CLASS '98.

Then he told that same old story, praising the Queen and the nobility. He said he was one of the English nobility, and gave a minute description of the family estate in England.

He seemed to forget the circle of red-shirted men, and the low, dirty factory, and the long, monotonous rows of black, greasy machines. He was roaming once again in the green parks of his old English home, and his gray eyes lighted with pride, and his thin, delicate hands shook with excitement as he told of the ancient glory of his family.

He ceased, and for several seconds the men smoked on in silence. Then Sam Maguire broke out, his face red with anger:

"What do you stay in this measly, good-for-nothing country for, any way, if England is so much better? Why don't you go back and live off your dukes and earls, instead o' stayin' here an' workin' an' takin' the bread out o' the mouth o' some pore cuss that needs it worse'n you do?"

Larry arose, full of dignity.

"I will return to my native land, sir, as soon as my father's estate is settled. Then I shall be able to live as one of the English nobility should live."

The group watched him in silence as he walked away.

"I don't believe he's a nobleman no more'n I am. He's nothin' but an ol' humbug," said one.

"I tell you what we'll do," cried Sam. "Let's write a letter sayin' that his father's estate has all fell to him. I'll send the letter to him through the mail, an' we'll watch him when he gits it. That's the way we can tell whether he's a nobleman or not."

So the letter was written and mailed.

The following noon the men gathered at the end of the room to watch Larry. They saw one of the office men come in and hand Larry a letter. They saw him start and eagerly tear it open. His hands shook so that he dropped his glasses twice. The men watched him with guilty faces. They looked more like so many criminals than like practical jokers.

Larry unfolded the letter hastily and read it. With a low cry of joy he started from his bench and tottered toward them, feebly waving the letter in the air. Then he saw the guilt and shame written on the faces of the men, and in a flash he understood the truth. A pain convulsed his face, and, with a moan, he fell to the floor.

The men rushed to him and began rubbing his hands and fanning him.

"Quick, boys! Open his coat and shirt and let him get some air."

"I didn't think he'd carry on like this," murmured Sam.

Sam tore open his shirt and put his hand on Larry's heart just in time to feel the last faint flutter, and he felt the last feeble breath on his cheek. His fingers touched something cold and hard which hung around Larry's neck. He held it up to the light. It was a small silver medal bearing the words: "To a Gentleman. From His Friends." HERBERT MOORE, 11 A.

"AN ARCH ENEMY."

THREE or four yards from me was a nest, containing young birds, beneath which, in long festoons, lay a huge black snake. What could be more overpoweringly terrible to an unsuspecting family of birds than the sudden appearance above their home of the head and neck of this arch enemy. I could not but admire his beauty. His black, shining folds; his easy, gliding movement, head erect, eyes glistening, tongue playing like subtle flame, and his invisible means of locomotion charmed me. Presently his attention was arrested

by a slight movement of my arm; and he came gliding down the slender body of a sapling. Eying me an instant with that crouching, motionless gaze, which only snakes and devils can assume, he turned quickly and disappeared in the undergrowth.

NORTON N. FISHER, 12A.

GOETHE'S "FAUST."

THE senior German class has taken up the study of "Faust" for this term's work. This drama is the greatest and most singular production in German literature; therefore, the pupils were proud of being favored with this selection.

The origin of "Faust" is based upon a mediæval legend, according to which a certain magician, Dr. Faustus, in order to quench his insatiable thirst for knowledge and fame, enters into an alliance with the devil. After Faustus agrees to sell his soul on condition that Satan shall satisfy all his wishes, Mephistopheles introduces him to the most wonderful knowledge concerning the mysteries of nature and the hereafter. Having satisfied his reckless desire, the devil finally demands the soul of his victim in payment, and Faustus perishes.

Goethe, when yet a boy, was impressed with the moral of this story and received the first conceptions of the ethical idea which he afterwards embodied in "Faust," the greatest production of his life.

As such, the drama possesses a double literary value. It is appreciated as an autobiography and admired for the ethical beauty of its idea.

In order to understand and interpret difficult passages in the drama, it is necessary to be thoroughly acquainted with Goethe's life. All his works, Goethe said, are confessions. In this respect, "Faust" may be called the drama of Goethe's life. Much pleasure is derived from comparing the poet's life with the hero's and finding the characteristics, desires and motives of Goethe's life reflected in the person of "Faust," the idealist.

The greatest and universally acknowledged value, however, lies in the ethical beauty, the sublime idea which makes "Faust" the drama of human life.

Who shall prevail in the great struggle for truth, knowledge, and highest development of human nature? Faust, the longing, upward striving idealist, or Mephistopheles, the tempter, destroyer and cynic? Shall Faust, too, perish, as the legendary Faustus does?

In the "prologue," Mephistopheles wagers to seduce Faust, "the servant of the Lord," from his allegiance to his Creator. Will he be victorious?

To follow the threads of this leading idea through the various, seemingly unconnected scenes of the first, and the allegories and symbols of the second act, would require more space than an ordinary composition.

Faust is the modern Prometheus. In his Titan-like struggle to penetrate the depths of knowledge, he yearns to comprehend all laws that govern the great universe and longs to "comprehend eternal nature." He yearns for revelation, which he hopes to find, first, in magic, afterwards by the aid of Mephistopheles.

He is tempted, he may err, "as longs as man lives, man errs," he may fall. Mephistopheles may triumphantly cry: "He fell! It is finished!" but he never fully succeeds in diverting the immortal mind of Faust from its aspirations. Mephistopheles may try his worst, he may finally rejoice at his death; but alas! the spirits who have been commanded to bring the departing soul of Faust to hell are overcome by good angels, who wrest the immortal in Faust from the evil one and fly heavenward. What has Goethe made out of the simple story of an adventurer?

The motives and desires of the legendary Faustus are selfish, sinful, and his enjoyment is sensual. Faust, however, aspires to the greatest and best in human nature; he at last finds satisfaction in unselfish activity purified by divine love.

Louise Iske.

THE SKYLARK.

MANY of our nature loving poets have written of the birds with which we are familiar, but few have given us such eloquent verses as those written by Wordsworth and Shelley, "To a Skylark." It is both interesting and instructive to contrast their treatment of the subject, their epithets and phrases, as in each case we may learn a great deal of the style of the poet.

When we stop to compare their epithets we first notice the similarity between many of them, and we feel that Shelley must have read and absorbed many of Wordsworth's ideas in both his "Skylark" and "Cuckoo." For instance, Wordsworth speaks of "Blithe newcomer," "A voice, a mystery," "Thou art laughing and scorning," "Up with me, up with me into the clouds * * * Singing, singing, with clouds and sky about thee ringing;" while Shelley, twenty years later, tells us of the "blithe spirit," "sprite or bird," "Thou scorner of the ground," and

"Higher still and higher
From the earth thou springest,
Like a cloud of fire;
The blue deep thou wingest,
And singing still dost soar
And soaring ever singest."

Yet in this very comparison we see wherein Shelley surpasses Wordsworth. Shelley's is the more imaginative, the more vivid. His ideas have more warmth and color. Such expressions as "cloud of fire," "blue deep," "golden lightning," "pale purple even," "shrill delight," "silver sphere," "rose embowered," "twinkling grass," are indicative of this.

Shelley is telling us of the beauty which surrounds the skylark. His verses are "profuse strains of unpremeditated art." Wordsworth, while he sees the beauty, is, in addition, trying to teach us something. In his poem we are drawn close to the poet's own feelings. He says, in one place—

"Alas! my journey, rugged and uneven,
Through prickly moors or dusty ways must wind;
But hearing thee, or others of thy kind,
As full of gladness and as free of heaven,
I, with my fate contented, will plod on,
And hope for higher raptures when life's day is done."

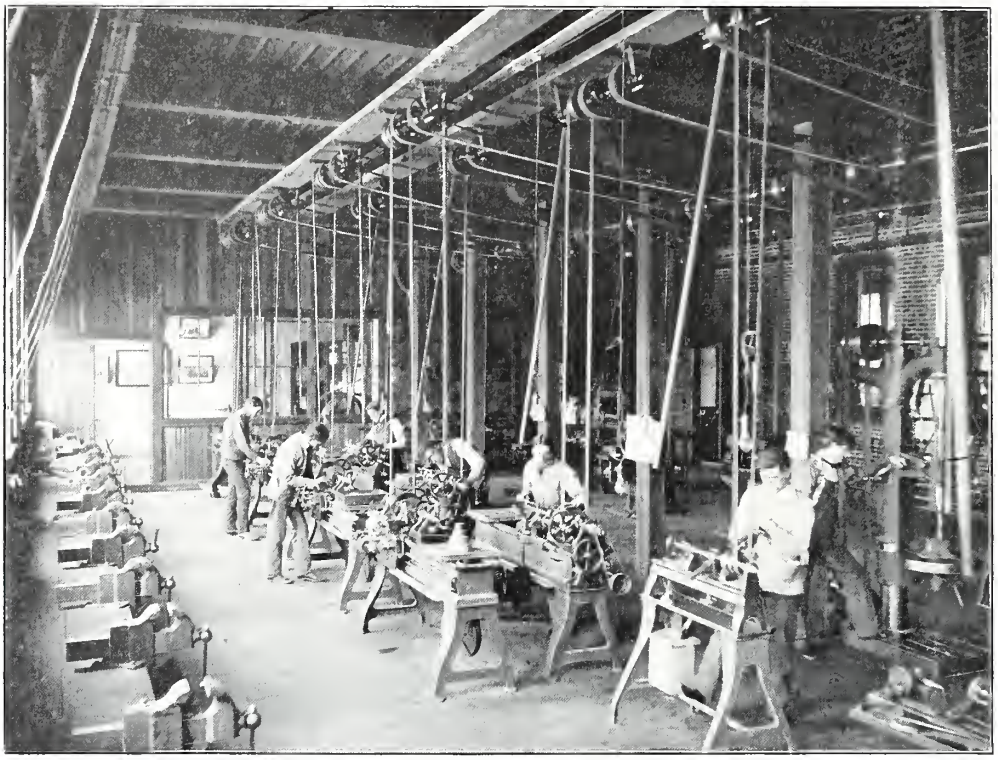
In Shelley's poem we find one stanza which we might think of as representative of his experiences in life. He says—

"We look before and after,
And pine for what is not;
Our sincerest laughter
With some pain is fraught;
Our sweetest songs are those that tell of saddest
thought."

Wordsworth's use of adjectives is sometimes very striking, such as "drunken lark," and he has given us lines of rare beauty which more than compensate for an occasional unhappy expression.

To sum the matter up we must say that each poem is a reflection of the poet's life and the time in which he lived. Wordsworth's is simple and composed, breathing peace from every stanza. Shelley's is striking, picturesque, vivid, sparkling with every new thought. Shelley's is the more finished, perfected poem, and to me the more pleasing.

C. T.,
12A English.



MACHINE FITTING ROOM.

CAMP LIFE.

CAMP life had become a reality. Our dreams of high living, with soft mattresses and six-course dinners, were things of the past, while broiled bacon, stale bread, straw pallets and mosquitoes were taken as a matter of course.

Every one had had his turn at making the morning fire and getting breakfast. Jack's trial was one to be remembered. His little alarm clock awoke him promptly at 5 A. M. A warm, drizzling rain had made the nicely prepared kindling unfit for use, but after some difficulty he succeeded in starting a slow, smouldering fire. Taking his pole, he started to the river. The recent rain had made the clay banks soft and slippery. Vexation and sleepiness made Jack careless, and an instant later he missed his footing, reaching the bottom sooner than he expected. Alas for poor Jack! He baited the hook three times, and three times was the bait eaten by some hungry but cunning fish. Once more the hook was baited, but the pole was stuck firmly into the mud and left to take care of itself, while Jack crawled back to bed.

Nell and Flo never tell their experience. They had often heard that at sunset rabbits by the dozen would sit along the roadside and were not difficult to shoot. The farmer near the camp so heartily confirmed this assertion that the girls decided that they would have rabbits the next morning for breakfast.

Shortly after supper Nell shouldered her small rifle and Flo carried a sack. They followed the road for half a mile over land that was low and swampy, and the mosquitoes so thick that their songs were any-

thing but musical. The rabbits failed to appear as yet. Flo was tired, so she sat down to rest and waited until Nell returned with the game. Fifteen minutes passed, and Nell was seen in the distance coming down the hill at great speed, brandishing her rifle in one hand and waving a small branch in the other. She found the mosquitoes so plentiful that it was with difficulty she kept them away by the use of the branch. Flo carried her sack back empty, after which Nell explained to the others that "She guessed it was not a very good season for rabbits."

MAMIE WHITE, 9B.

POLAR EXPEDITIONS.

EVERY year or so we hear of a new Arctic expedition. From their frequency, and the little that is accomplished by them, Mark Twain's opinion of "Holy Grailers" seems peculiarly applicable: "The boys all took a flier at the Holy Grail now and then. I don't think any of them actually expected to find it, or would have known what to do with it if he had found it. You see, it was just the Northwest Passage of that day, that was all. Every year expeditions went out holy grailing, and the next year relief expeditions went out to hunt for *them*. There was worlds of reputation in it, but no money."

Nansen, heralded on bill-boards as the "Hero of the Nineteenth Century," gained money and fame by a two years' sojourn in "below zero" territory. He accomplished nothing. He made no additions to science or art, yet people pay hard dollars to hear him talk, and to read his book; a book secured from competition by ironclad contract with his crew, who relinquished all rights to publish, either separately or conjointly, any book of their travels. Truly a wonderful combination of scientist and business man!

A relief expedition was recently organized to search for Andree, who started for the North Pole in a balloon. If he returns and claims to have reached the Pole, who could disprove his statements? Nansen would be eclipsed, and Andree's name would be in every magazine and scientific journal. He would make millions by lecturing, and still the world would be no better off.

Arctic exploration seems to be a profitable field for unselfish laborers in the cause of science.

To paraphrase Mark Twain, "There is a world of reputation in it and lots of money."

RALPH PECK,
12A Grade.

FAREWELL OF HECTOR AND ANDROMACHE.

(Iliad, book vi, 465-500.)

Glorious Hector was hast'ning toward Ilium's wall and the portals,
Through the lone streets of the city in quest of his wife and dear infant.
Soon had he come to the gates, whence Andromache ran forth to greet him.
Then, with paternal care, his arms to the child he extended,
But, in amazement, the boy shrank back to his young nurse's bosom
Fearing his lov'd father's aspect and brazen crest of horse hair,
As, from the top of the helmet it waved in reverend motion;
Then the kind father and mother heartily laughed at his folly,
But the proud Hector, with pity, took from his head the dread helmet,
And, in its glittering splendor, placed on the ground his bright armor.
Now, with a fatherly kindness, kissed he and fondled the infant,
While in humble devotion a prayer to Olympus he lifted:
"Zeus and ye gods eternal, grant that my son in his manhood,
Even as I, be pre-eminent midst all of Ilium's warriors,
Even as mighty in conflict and a powerful king o'er the Trojans.
Then may men say of his prowess when coming triumphant from battle,

Far more valiant is he than Hector, his chieftain father;
May, too, the heart of his mother leap with proud exultation
As from the conquest a victor he bears the spoil of his foemen."
So prayed the famous Trojan in tones of solemn entreaty,
Then put the beauteous child in the welcome arms of its mother
And she, with tearful smiles, pressed the babe to her sweet scented bosom.
Hector perceived her weeping, and, stirred by kindly affection,
Held forth his arms to embrace her and soft words of comfort thus whispered:
"Solace thy cares, dear wife, and grieve not thy heart with deep sorrow,
Since, against fate, no mortal can haste my descent to dark Hades;
Destiny none can avoid, be he coward or glorious hero,
For, on this earth once born, man's doom with the gods is intrusted.
Cease then from grievously pining and tend thou thy course to our dwelling;
Here, with thy maid servants fair, let thy sorrows in spinning be buried.
War is a care to all men, of those who dwell in high Ilium,
But chief of all unto me, the foremost man of the Trojans."
Then, with a longing for battle, he seized from the ground his huge helmet,
Hastily bade farewell and moved toward the dread din of action,
While his dear wife going homeward, with trouble and sorrow o'erladen,
Oft faced about midst her weeping and gazed on the brave Trojan chieftain.
Soon had she come to the dwelling of the undaunted, man-slaying hero,
And had stirred her maids and home with deep lamentation.
Thus then bewailed they Hector, the bulwark and pride of all Ilium,
Fearing lest death would o'ertake him in the deadly brunt of fierce battle.
Meanwhile he sped on to action, with valor and courage intrepid,
Eager of heart to give battle and vie with his dear country's foeman.

JOHN F. ENGELKE.

PHYSICAL LABORATORY.

Technical Department.

THE OBJECT OF THE TECHNICAL DEPARTMENT.

ALTHOUGH our school is now three and a half years old, very many people, even of this city, do not understand the object of the technical department. The question, "Does a boy learn a trade at the Industrial Training School?" is exceedingly common. Upon its being answered in the negative, the next question is, "What is the use of it all, then? Are you not wasting much valuable time?"

In answer to this, let us ask another question: "Could any one expect a pupil graduating from a common high school to immediately enter upon the profession of a lawyer, doctor, or clergyman?" Certainly not. Yet no one would condemn the high school for that reason. It is there that the student gets that stock of general knowledge which he will use daily throughout his life, which prepares him for the college or law school, and which is essential to the highest success in any line of work whatever. It is what the parent recognizes, in sending the child to the high school, as the foundation upon which the knowledge of a special trade or profession must rest. It is evident, then, that the wider and deeper this foundation the better, and it is just here that the industrial school has the advantage over the common high school. The field of information and experience which it opens before the pupil is vastly superior, inasmuch as it gives an extensive knowledge of mechanics and technics over and above the regular high school course.

It is plainly, then, as unfair to expect a pupil to enter a trade on leaving the Industrial Training School as it is to expect the high school pupil to enter a profession immediately upon graduating. The absurdity of expecting a graduate to know a trade will be evident when it is known that, on the whole, the boy spends only about fifteen days, of ten hours each, in bench work. Could any one become a carpenter in that time? In some departments the time given amounts to twenty or twenty-five days; but in none does it exceed thirty.

It is, however, a matter of fact, learned from experience, that more may be learned during this time of fifteen days than in a factory or workshop during six months. Thus the system puts within ready grasp of the learner an immense store of knowledge which could not otherwise be obtained without ruinous loss of time.

WILL R. BALLARD.

TURNING.

WOOD-TURNING occupies the second half-year of the work in the technical department. The shop equipment for this course consists of twenty-five lathes, with as many benches, and a set of turner's tools for each pupil, besides a band-saw, jig-saw, universal trimmer and drill-press, which are for the shop in general. Tools may also be obtained from the tool-room by any pupil on depositing his check.

WOOD TURNING.

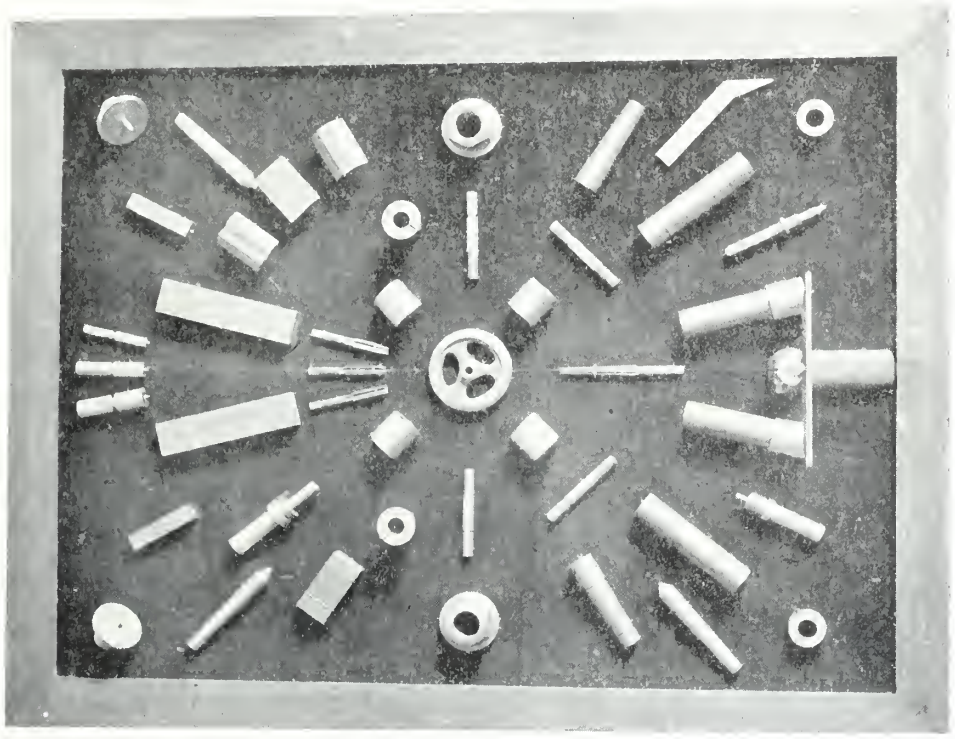
The work in turning consists chiefly of learning to use the tools and make the several different cuts, of which all turning, however complicated, is but a combination. The exercises are ten in number, and are arranged progressively. In the latter part of the term, however, some useful articles are made. Each pupil is required to make what is commonly known as a spool-box. It is an exercise in built-up work, and consists of twenty-five pieces, usually of two different kinds of wood. Besides this, each draws an original design, from which he makes a project. These are usually fancy vases, powder-boxes, match-safes or the like. It has been customary on our annual visitors' day for the turning classes to make small pine goblets as favors.

The course gives a practical knowledge of small turning and a great deal of valuable training. It is the first experience the pupil has in using a power outside his own body, and so opens up an entirely new field to him.

MACHINE FITTING.

WHEN visitors enter the door of the machine fitting room, a rapid glance at the surroundings tells them that there is something interesting within. So they investigate further and find many belts moving, wheels turning, and some blue jacketed young men adjusting their machine or fitting a piece of work in it.

not so complete as those in the college shops, but it is of the latest improved pattern, and serves well for the amount and character of work done. The outfit consists of seven large engine lathes, one planer, one shaper. and a number one and one-half universal milling machines, a speed drill, a drill press, one tool grinder, two coarse emorys, and also a tool room which contains tools for general use.



MACHINE FITTING.

It is possible that these people have thought, previous to their visit, that it was not a hard task to work with and shape a a piece of wood into a definite form; but now they are inquisitive to know the process of shaping a piece of rough iron or steel.

This work is accomplished by the boys in this department through the aid of various machines. Our equipment is probably

The work is divided into two parts, requiring one year for completion. During the first half-year pieces of work are taken up which involve most of the principals necessary in making machine parts. The first work given to the class is a cast iron cylinder, to be cut to a certain length and diameter. The centers of the ends are first drilled and the piece placed between the centers of the lathe and revolved with the

live center by means of a clamp; the ends are then cut square and smooth and the sides turned down until the proper diameter is obtained.

A taper cylinder is the next exercise, and is made by setting the dead center forward, or by the use of the taper attachment, and proceeding as with a straight cylinder. Our next piece is an exercise in square and V thread cutting, one of the most difficult for a beginner. The tool used for this work is ground square, or angular, according to the size and style of thread, and is fed automatically in a line parallel to the work by gearing, which is changed to suit the number of threads to the inch. Other forms of work, such as making and fitting collars on shafting, cutting flat surfaces with the planer, shaper and milling machine, are also taken up by each pupil.

The present class began their second half-year's work by making some tools and useful machine parts, such as face plates for wood turning lathes, taper reamers for metal work, and some mandrels of various designs.

Most of our attention, however, has been paid to the construction of a wood-turning lathe of the Putnam pattern. In this work each pupil is assigned a part of the rough casting; when he has completed the work on it another is given him. We have at present turned out most of the smaller parts and have made some progress with the large ones. The machine, when completed, will be the first work of this kind made entirely by the Industrial Training School.

The two classes now in this department are not very large, but every member takes great interest in the work and believes that a great benefit will be reaped from it. Although we are not expert machinists we have a general knowledge of machinery, and the methods of its construction, as well as training in accuracy and neatness.

H. W. Munsell.

THE FORGE-ROOM.

NOTHING contributes more to the success which an institution attains than does the popularity and the spirit of satisfaction with which it is received.

This has been true of the Industrial Training School from its beginning to the present moment. Especially has the spirit of prosperity been noticed in the forging department. Year after year the classes have become more and more crowded, until, at the beginning of the last term, the advanced class was compelled to divide into two sections, each section taking alternate days in the forge-room.

The work, on a whole, is very delightful and entertaining, affording a pleasing contrast to the more confining duties of the class-room.

Each boy is assigned to a forge, which has a full complement of tools. The first week is spent in hammering lead, so as to become accustomed to the use of the hand-hammer. This is the hardest and most disagreeable work of the course; but it is soon finished, and the real work is begun in iron.

In the first half year the boy learns to forge the most simple articles, such as a hasp, gate-hook, etc. The most important part of the term's work is the welds. There are a number of ways in which to make a weld, but the two most general ways are the lap and V welds. It takes a little patience at first to learn to do this work properly, but the boy soon masters it.

The work in the second term is on a larger and more difficult scale. It generally commences with several pieces which require the use of the steam hammer. Work in steel is next taken up. Steel is very pleasant to work in on account of its elasticity, although much care must be exercised to keep from overheating and burn-

ing it. Several lathe tools then are forged for the machine-shop.

Each boy is allowed to make something to take home. This generally takes the form of fish gig or anchor. The practice obtained in making these is excellent, as it requires accuracy of judgment and a careful manipulation of the hammer to form the slender prongs and barbs.

Lastly, the class is put to work on some project work for the schools. At the beginning of the last term a fence was designed to go around the east side of the building. That class made four sections of fence, and the present class will make as many. The class is divided up into four sections, each section to make a length of fence. In this way much more is accomplished than otherwise.

Thus it will be seen that the work is all

FORGE ROOM.

very practical, and in the shop it is carried on in the most practical manner. It is not, however, our object to turn out blacksmiths, carpenters or machinists. The work is arranged and presented so as to give the boy an idea of what the work is like, to show him how to use his hands, and to co-operate with the work in the classes. It is undoubtedly true that a man who knows how to drive a nail straight, or how to use a lathe, has the most advantages in the world, for the accuracy required and the finish necessary on a piece of work gives him advantage, when taken together with the other branches, which the man has not who knows nothing of these things.

HARRY P. MCCANN,
12 B Grade.

PATTERN MAKING.

ONE of the most interesting and instructive studies in the technical department is that of pattern making.

The patterns made in this department are generally of pine or cherry. They are used by the foundry class in making castings required in the machine room.

The first patterns in Course I. are not very difficult. They are given merely as exercises to make the student more familiar with the handling of his tools and the problems of draft, finish and coring. In solving these problems, he must know how the pattern is to be molded, whether in a two or three part flask.

He then adds the draft accordingly, so that the pattern may be easily drawn from the sand. There is no set rule for the allowance for draft, but is generally about one-thirty-second of an inch increase in width to one inch in height.

Finish is an allowance added when the castings are to be filed, planed or turned. The allowance for finish is about one-sixteenth of an inch, but varies with the size and shape of the casting. The shrinkage of iron is about one-eighth of an inch to the foot, and must be figured out for each pattern. For convenence, a pattern maker's or "shrink" rule may be used.

He must also know whether a green or dry sand core is required. It the former is needed, he must leave a hole in the pattern corresponding to the core; but if a dry sand core is wanted, he adds core prints to the pattern where the hole should be. These core prints leave impressions in the sand in which the core rests.

The core-boxes, in which the cores are made, are sometimes more difficult to make than the pattern. They are usually made of several pieces glued together, a joint being made for each change in the diameter of the core. The shape of the core corresponds to the cavity in the casting.

In making such patterns as pulleys, live cones, etc., the warping of the wood must be taken into considera ion. The patterns could be made from one piece, but after being used several times in the damp sand they might warp so much that they could not be used again. Wood shrinks most across the grain, and to prevent this the pattern is built up, that is, made of several layers. Each layer consists of six, eight or any convenient number of pieces. These pieces are cut and glued so that the grain of the wood practically runs with the circumference of the pattern.

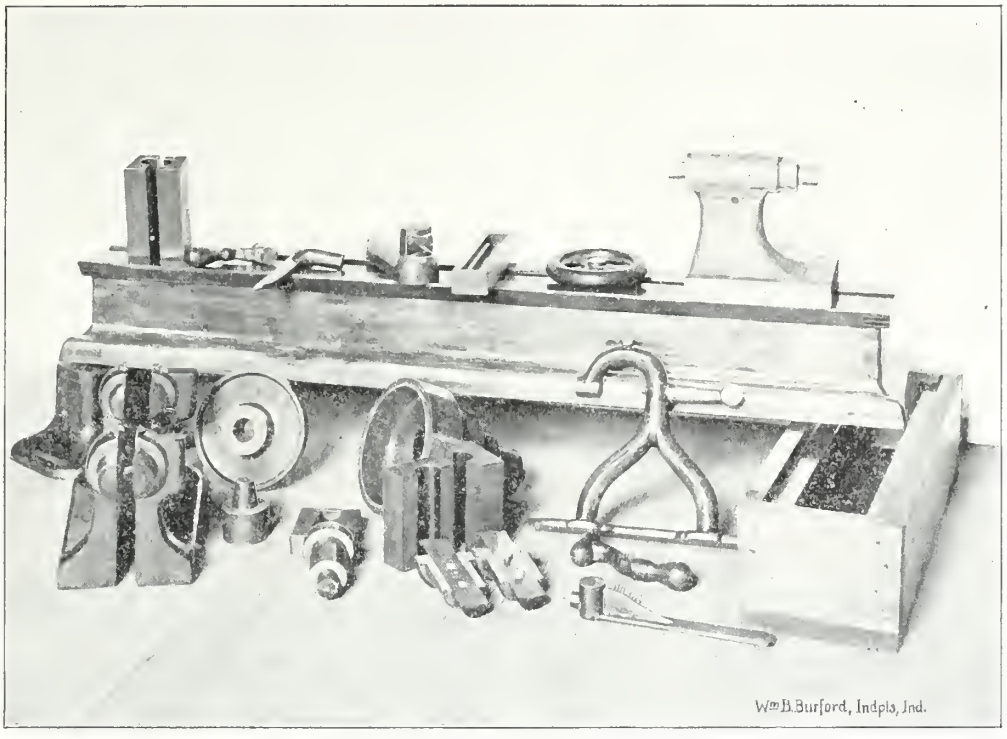
The patterns in the latter part of Course I. become more practical and difficult than in the beginning, but in Course II. they are still more complex. The boys in the advance class are at present making patterns for a wood lathe which is to be used in the shop.

Each boy is required to make a complete sketch of his pattern before he can proceed to work upon it. These drawings, requiring much study and time, are, undoubtedly, very good practice.

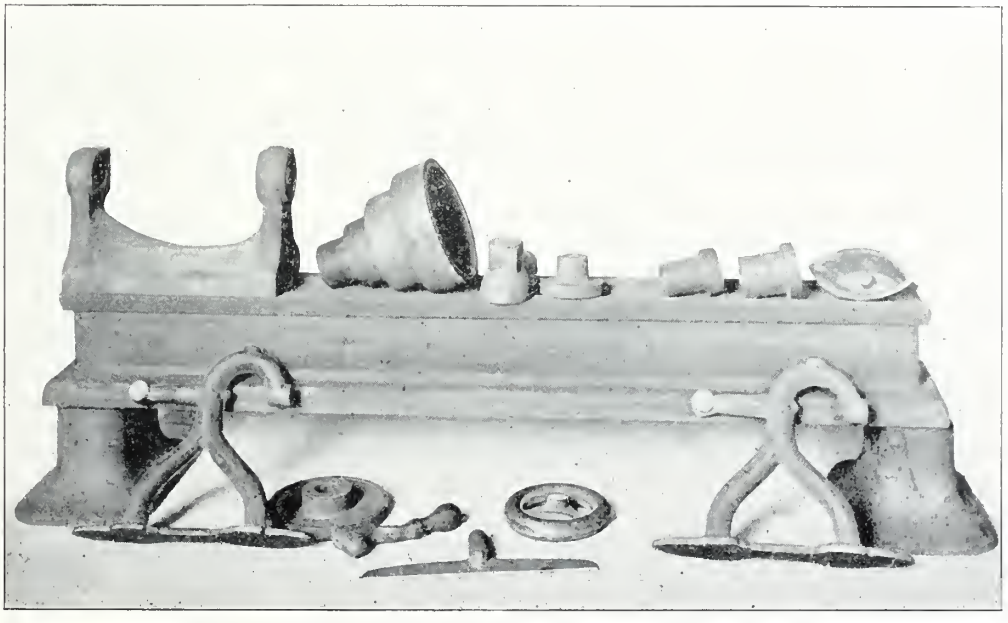
CHAS. CABALZER.

THE FOUNDRY.

THE foundry is a well lighted room, containing in one part two rows of benches, which give working space and hold the apparatus for some twenty one pupils, and in the other is the cupola, core-oven and pouring floor. The work done here requires one year, and this conveniently divided into the first and second terms. During the first term the beginner is made acquainted with the manner and uses of a moulder's tools. He learns how to make, and is given time to become fairly proficient in the various kinds of moulds which



PATTERNS FOR WOODWORKING LATHE, MADE BY STUDENTS IN THE COURSE IN PATTERN MAKING.



ROUGH CASTINGS FOR WOODWORKING LATHE, MADE BY STUDENTS IN THE COURSE IN FOUNDRY.

are commonly used by all foundry men. The pupil has in this term several chances of seeing his moulds practically applied by the advanced class in casting. By this plan the evidence of any defect in the mould is brought to light, and he can learn to guard against the fault in the future, or if the casting is perfect he has the pleasure of noting the confirmation of work properly and conscientiously done.

In addition to this active and practical course in the foundry he is required to attend lectures explaining the properties and composition of the various moulding sands, facing material and cast iron.

The main feature of the second term is the casting. The pupils, under the supervision of the instructor, charge the cupola and "run" off the charge. These "runs," as they are called, take place about every three weeks, and the intervening time is occupied in preparing special moulds that are too difficult for the first class. This special work for the present term consists in making all the parts of wood lathes to be used in the wood turning department of our school.

Lectures are to be attended as in the preceding term, and they consist of talks explaining the handling and qualities of the various brands of pig iron from the time it is mined until it is finished in the machine room as a casting. The construction and mode of charging blast furnaces and cupolas are also dwelt upon.

Visits to the iron working shops of the large manufacturing plants in this city are made during this term, and it is expected that the boys gain an adequate idea of what their work shall be should they adopt moulding as a profession.

It were absurd to think that the purpose of the foundry is to produce full-fledged moulders. A consideration of the short time devoted and the comparatively limited equipment of the foundry will at once explode such a supposition. Our purpose is to give the pupil a general idea of foundry work, to let him see what it is, to let him find out whether he has a talent or a liking for this branch of mechanic arts. If the pupil enters the class with the determination to become a moulder there is no public school in the country of the I. T. S. stamp which will so quickly, so thoroughly give him a wide general view of foundry work or such an excellent and practical foundation for the same. We give him a start. Time and experience can only accomplish the rest.

DELOS ALIG.

SEWING.

THE sewing rooms are among the most pleasant in the building. The bright sunlight streaming in through so many windows, and the healthy-looking plants, make very pleasant work-rooms. Here we have a new sort of freedom, which could not be allowed in other recitations, and the bounds of which are seldom overstepped.

The work of the first year consists in making very small models, in which all the different stitches of hand-sewing are learned. Extra work is done by "busy bee" workers, who are ahead of the class, such as dainty handkerchiefs, baby dresses, or new models. This is always an incentive to slower, indifferent pupils.

To write up the lessons clearly and concisely is hard to do, but is a proof that the work is clearly understood, and we find these lessons very valuable for future reference.

Aside from the models, lessons are given upon all the materials which we use. Cotton, wool, silk, pins, needles, etc., are taken from the raw state to the time when ready for use.

The work of the second year involves what we learned the first year, besides machine sewing. We learn to use the different attachments of the machine by making small models. The rest of the time is spent in making the garments.

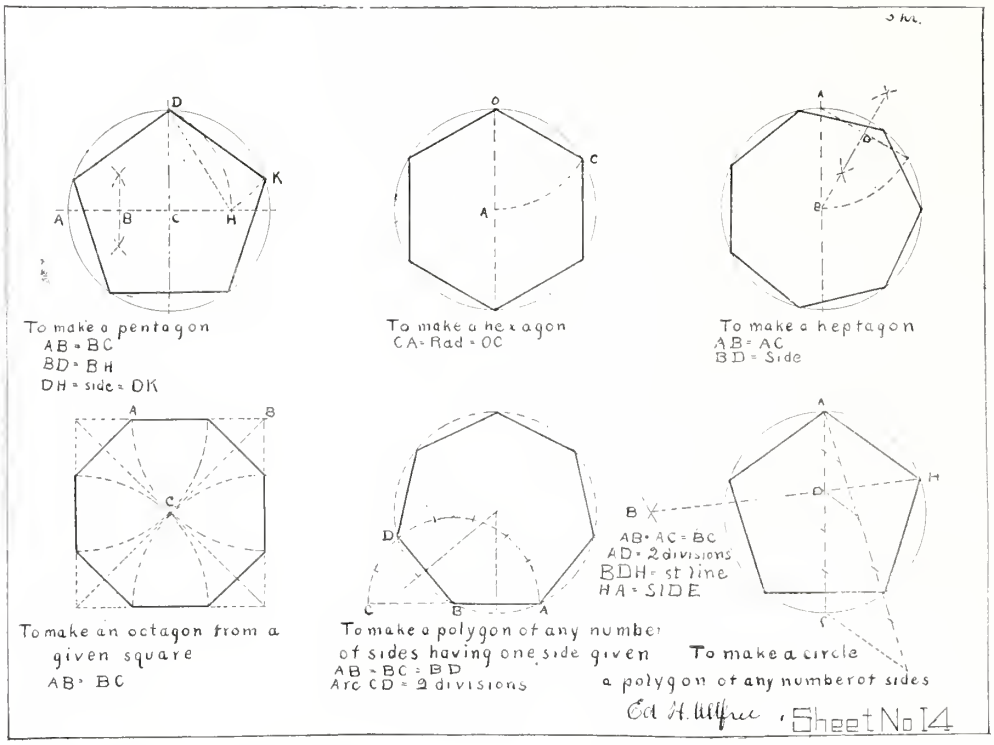
A lesson forcibly impressed upon our minds is accuracy. We soon learn that an inch hem does not mean one "about" an inch wide. Our work is marked upon cleanliness and neatness. Every stitch must be our best, and the garment as nicely made as if for an exhibition.

The success of the one who sews depends upon the pride she takes in doing her best. She does everything by rule and so seldom makes a mistake which spoils her work.

The sewing-room, as a whole, is a place to test the originality, common sense and precision of a girl. When she leaves it she enjoys the fact that she now can do many things for herself which, before, had to be done by "mother."

EDNA STEPHENS.

SEWING ROOM.


To make a pentagon
AB = BC
BD = BH
DH = side = DK
To make a hexagon
CA = Rad = OC
To make a heptagon
AB = AC
BD = Side
To make an octagon from a given square
AB = BC
To make a polygon of any number of sides having one side given
AB = BC = BD
Arc CD = 2 divisions
AB = AC = BC
AD = 2 divisions
BDH = st line
HA = SIDE
To make a circle a polygon of any number of sides
Ed H. Miller, Sheet No 14

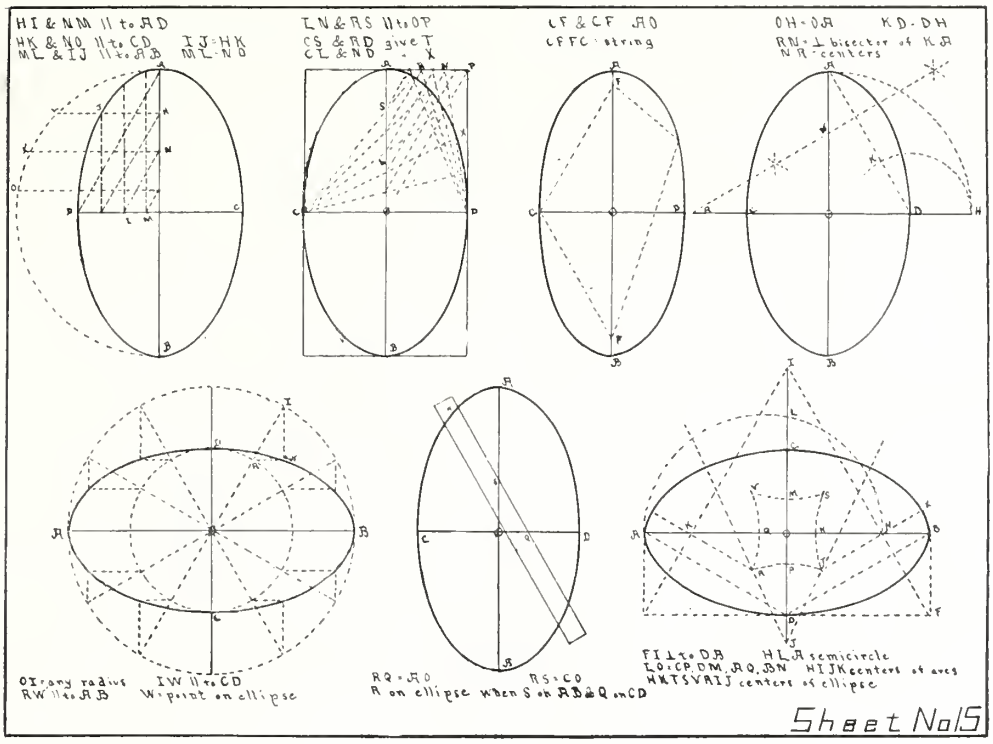
MECHANICAL DRAWING.

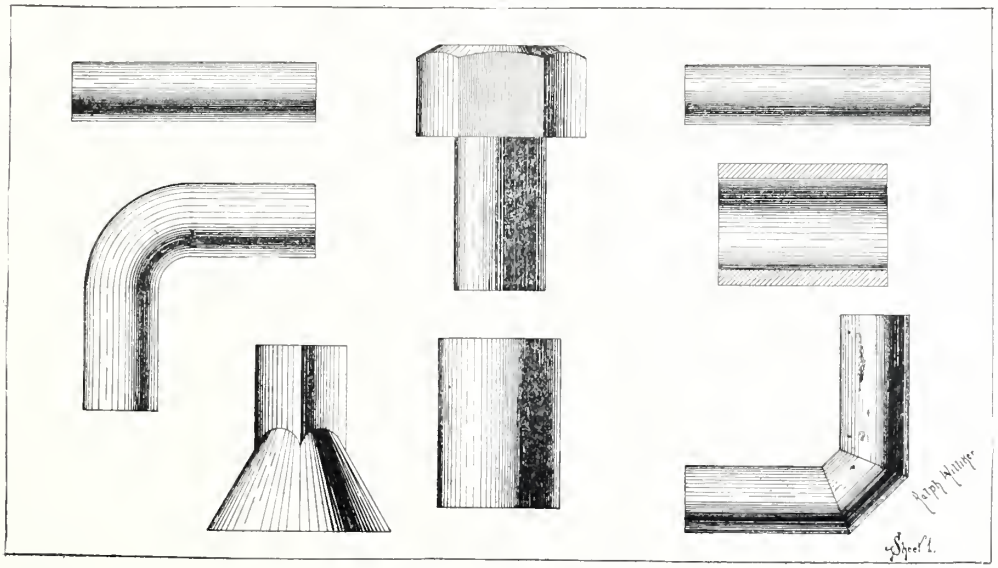
I WAS sitting back in my seat lazily listening to a freshman class recite when the principal came to the door looking for some one to show some visitors over the building. I went with him to the office, expecting to find some uninteresting man or a fond mother who would wish to give me a complete summary of Willie's or Harry's life since he had left the kindergarten; therefore, I was agreeably surprised to find three young ladies.

We went first to the kitchen and the sewing rooms. In the shops I explained, to the best of my ability, the steps and processes of the work in each department and answered as explicity as possible the questions they asked about the boys and their different ways of working. The class in free-hand drawing was struggling with a pose which represented "Mind and Hand," and some of the drawings were very good, showing that the pupils were using both their minds and hands in their productions.

"I have heard a good deal about the mechanical drawing department—let us go there next," said one of the young ladies, as we left the physics room. "When I went to High School and the department of mechanical work was carried on there," she continued, "the class was not very large. Has it increased much here?" When the class started in this building, I answered, there were thirty-five members. This year there are one hundred and sixty-four, and still there is room for about one hundred and ninety more. You see these two large rooms are well lighted, so that the forty-four boys (the number who may work at one time) have plenty of space and light.

"Those drawings hanging around the room—do they represent the work of each


HI & NM ∥ to AD
HK & NO ∥ to CD IJ = HK
ML & IJ ∥ to AB ML = NO
LN & RS ∥ to OP
CS & RD give T
CL & ND " X
CF & CF AO
CFFC string
OH = OA KD = DH
RN ⊥ bisector of KA
NR = centers
OI = any radius IW ∥ to CD
RW ∥ to AB W = point on ellipse
RQ = AO RS = CO
R on ellipse when S on AB & Q on CD
FI ⊥ to DA HL = A semicircle
LO = CP, DM = AQ, BN HIJK centers of arcs
HKTSVRIJ centers of ellipse
Sheet No 15

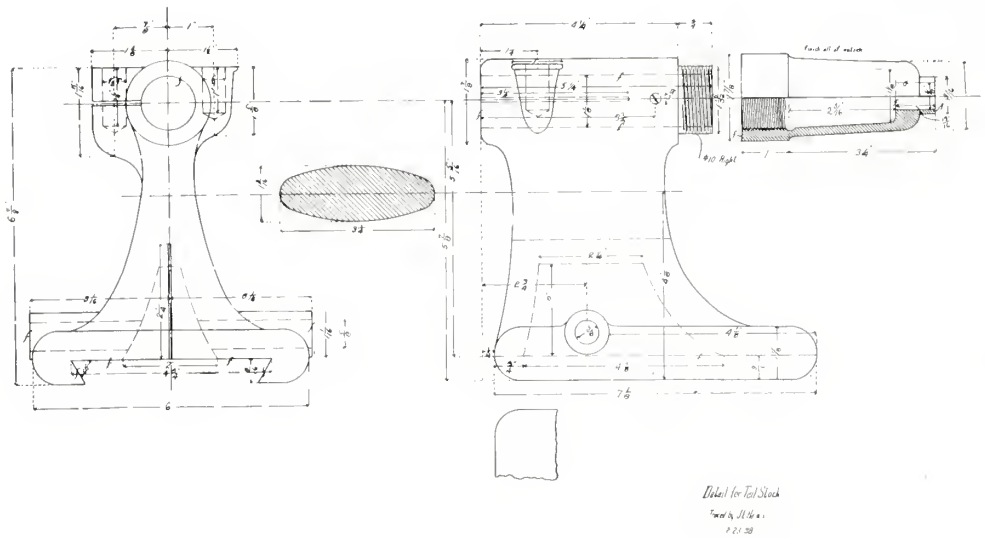


EXERCISES IN LINE SHADING.

year? I see they are marked by groups, 'Course I, and II,' and so on. What is the difference in the work each term?"

Yes, I replied, they do show the work by courses, and if you will step down there to "Course I," I will try to explain in a brief manner the differences. You see by these first sheets that the boys learn to use and manage their instruments and to draw simple geometric designs. On the next sheets printing and ornamental work are studied. The second year deals with projection in its different forms. That is, drawn, showing lines in which the two surfaces meet. In this year a short time is spent with descriptive geometry and its application in drawings of roof construction and shadow work, with ink or color shading.

The next step deals with isometric drawing, and merges into mechanical architectural perspective. By the latter, views of houses and bridges are drawn, such as an architect or engineer would present before the construction. In these drawings, as far as the work is the application of rules

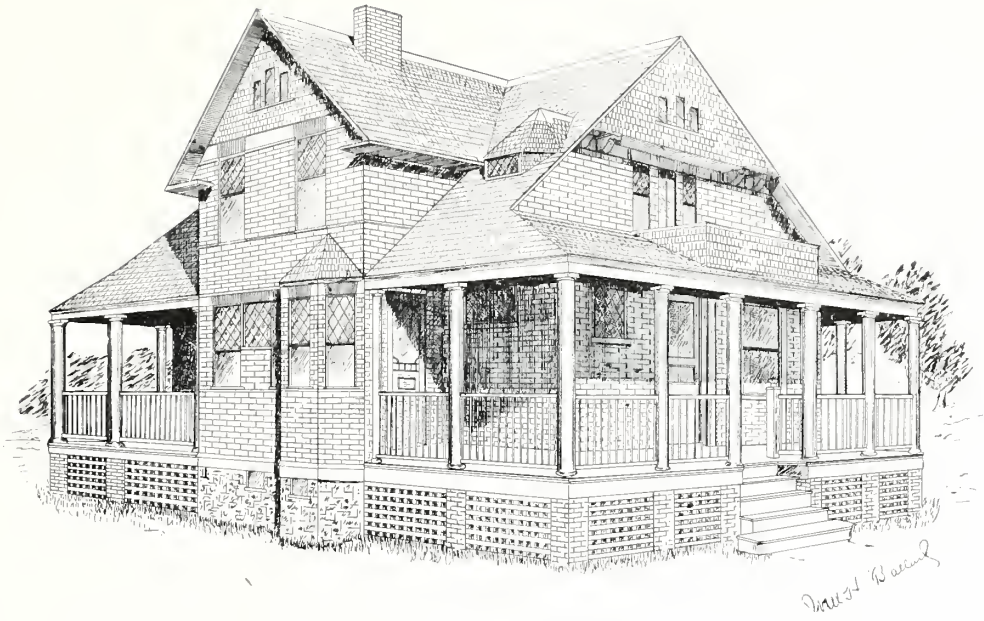


drawing two or more views (front, top, and side) of an object in different positions or angles. For this work the models needed, such as wooden wheels, boxes, blocks, mortise and tenon, and dove-tailed joints, are supplied by the shops. In this connection, also, section drawing is treated.

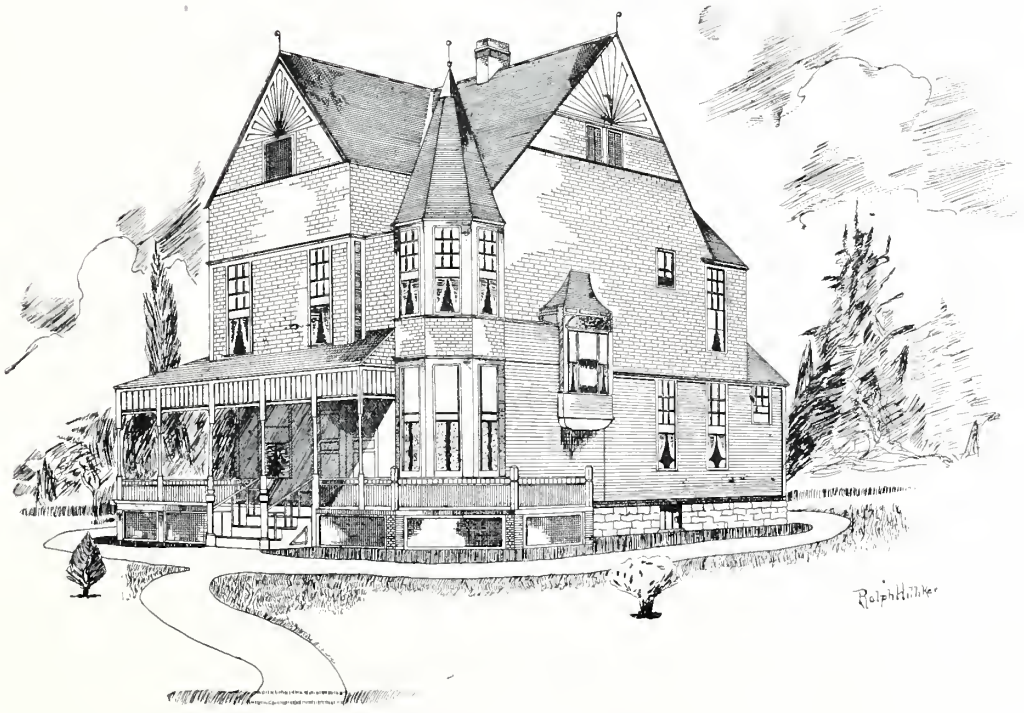
The progression of the next year becomes somewhat harder and needs more thought, as it deals with the intersection of solids and the development of their surface. In case, for instance, of the intersection of a square pyramid with a cone at an angle of thirty degrees, the top and side views are and formulas, the results are generally about equally good, but in finishing the work where taste must guide the pen, the boy with artistic sense of proportion has the advantage over his more mechanical neighbor.

As I turned from the last drawing to say I could tell them no more, you may imagine my surprise to see one of the young ladies quietly closing a note-book. She was a reporter sent to "write up" the school.

CHARLES B. DYER,
12A Grade.



ARCHITECTURAL PERSPECTIVE.



ARCHITECTURAL PERSPECTIVE

BOOKKEEPING.

A FAIR knowledge of mathematics and a good supply of common sense are the essential requirements for success in bookkeeping. Perhaps the latter is more essential than the former, for often the only advice a pupil receives when an intricate transaction comes up in the work is, "Use your common sense."

During the first two terms the pupil depends very much upon teacher and books. A few fundamental principles are memorized, and unless the student learns to apply these he can not succeed in bookkeeping. The number of books used is limited to journal, ledger and bill-book. Gradually, as the work becomes more difficult, other books are added, and at the end of the second term all the elementary principles of a set of books have been gone over.

One of the faults that the teacher has to contend with is the failure of pupils to read with care. Pupils must grasp the thought of the topic or all the assistance the teacher can give him will be in vain. Beginners are also very inaccurate in addition and multiplication. Students are astonished, and sometimes offended, when their teacher tells them they can not add or multiply. But, nevertheless, it is true that more mistakes are made in addition than in any other phase of bookkeeping. Carelessness in making figures or in copying them often makes the pupil work for several days on a trial balance which is correct but for one careless figure.

During the third and fourth terms, pupils are required to depend more and more upon their own knowledge. At this time practical applications of the principles of bookkeeping from various sources are used, such as difficult statements and partnership settlements.

All unnecessary books are dropped and the few that remain are used in their most complex form. Now the knowledge which the pupil has gained during the first two terms is drawn upon and each day brings a new proof of his ability. Some pupils who have not yet learned to be careful and accurate in making out checks and notes have a difficult time, for the teacher takes advantage of every carelessly made figure and raises the check to a larger amount.

During the last term the pupil is actually conducting a business on good, honest principles, and the degree to which that business is made a paying one depends entirely upon the ability of the student. Contracts are drawn up and signed, and thus the student learns how binding his signature is, and that carelessness will always be taken advantage of. For instance, when a pupil rents out a part of his office he must give an accurate description of that part, and not allow himself to be put out of his business place by being careless.

But it is better to be cheated out of worthless currency and profit by the experience than to be taught later on when the checks can not be made out without first consulting the bank account.

All pupils will say that bookkeeping has been interesting and profitable. Even though no special use is made of it, the training acquired is useful in the other studies. Learning to read and to understand what is read will assist the student in English as well as in bookkeeping. The accuracy and preciseness with which a student interprets the thought of a sentence in bookkeeping is as beneficial to him and as worthy of commendation as the best Greek or Latin translation.

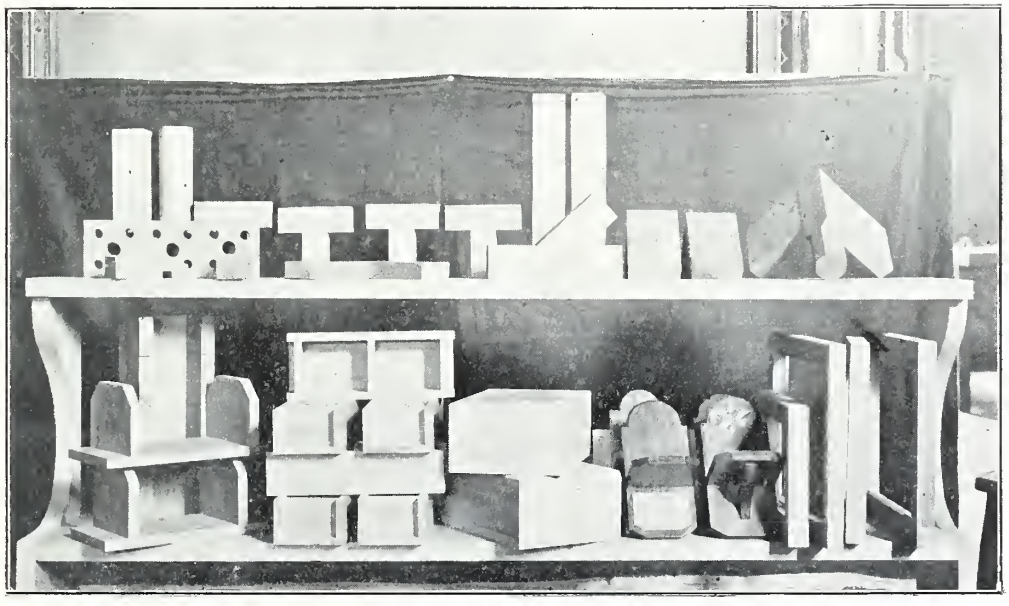
BERTHA BORST,
12 A. English.

WOODWORKING.

WHEN pupils in the eighth grade choose their subjects for the Industrial Training School many of them select woodworking, thinking it is the easiest subject taught there. Those who think this are mistaken, for as much care must be taken in preparation as in any other recitation. If a piece of work is $\frac{1}{32}$ of an inch under size it is rejected.

After the pupils are enrolled they are assigned their benches or places to work. In the drawers at the benches are all the necessary tools, the planes, chisels, saws, squares, gauges, oilstones, hammers, screwdrivers, dividers, rules, augers, and benchhooks. Then they are given their lockers in which are kept the overalls they wear while working. Next, the teacher shows the pupils how to plane a piece of wood to given dimensions. At this point a great many pupils get discouraged, because the work is not so easy as they expected it to be. They are also shown how to saw straight to a line and to use the chisel. When they become accustomed to the use of these tools they begin work on the exercises, which consist of mortise and tenon, blind mortise and tenon, pinned mortise and tenon, dove-tail and triple dove-tail joints and a nailbox, match-shelf and table leg. In one term they become accurate in their work and familiar with the tools.

WALTER GEKELER.



BENCH WORK.

HYGIENE AND HOME NURSING.

A KNOWLEDGE of Hygiene and Home Nursing is very beneficial to young women, as they are usually the ones called upon to assist in cases of illness.

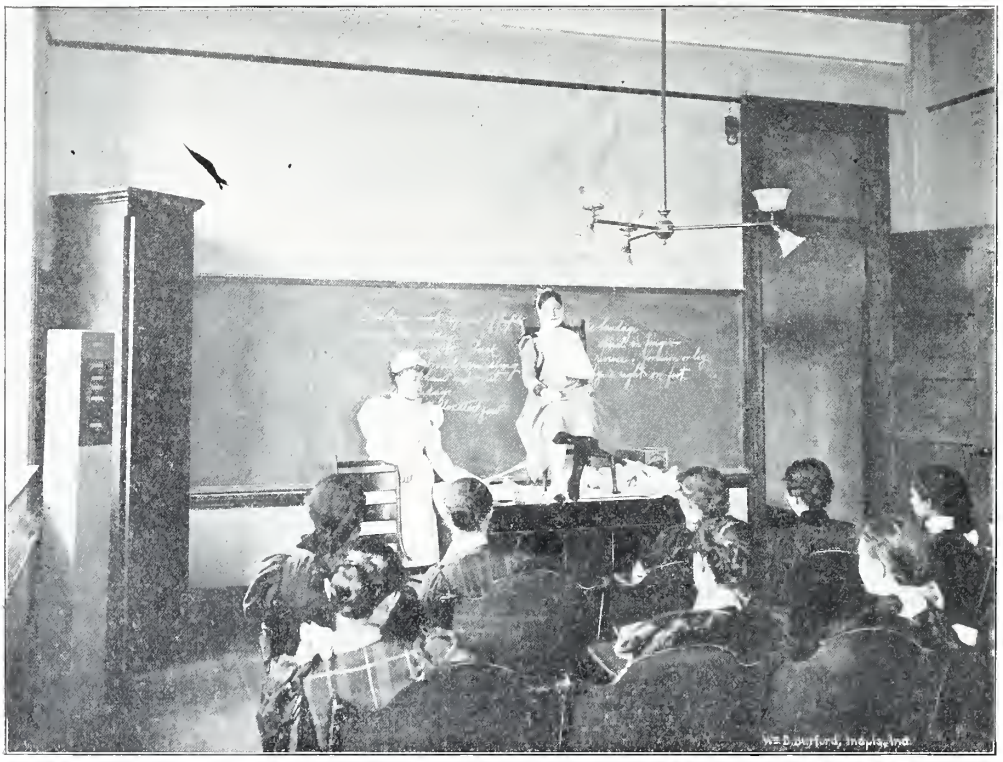
The work consists of a review of Physiology, a course in Emergency work, and a study of the qualifications and duties of a good nurse. In the study of Physiology it was very interesting to learn of the structure of our bodies. A careful study was made of the Respiratory system by the dissection of the lungs and heart of the calf. The bones, with relation to structure and location, were studied by means of a skeleton.

The Emergency work teaches what to do before the doctor comes; how to care for wounds of all kinds, fractures, dislocations, sprains, burns, scalds, and frost bites; how to restore the unconscious and apparently drowned, and how to care for the poisoned. Each girl was required to practice and understand the use of the different bandages. The triangular or emergency bandage was found to be the most useful one. The commonplace articles in the kitchen were used as remedies and antidotes, and found to be the very best.

In the Home Nursing work much was taken by note. A neat, correct account of the daily work was kept by each one. Poultices of all kinds were made, and the where and when to apply them studied. Invalid cookery was very interesting and well liked, as each one was permitted to taste the delicacies prepared by the teacher.

Of all the practical work the most beneficial is the making and changing of a bed with the patient in it. On the whole the subject is a very profitable, interesting and a pleasant one to study.

BESS BUCHANAN.



HYGIENE AND HOME NURSING. "BANDAGING."

STENOGRAPHY.

STENOGRAPHY is one of the most attractive and helpful studies taught in the Training School. To most of the students, the work is, indeed, very pleasant from the beginning, and the interest increases as advance is made in the study. What at first seemed to be a mysterious network is gradually unraveled, and the pupils can not help but enjoy the work. It is helpful, in that it improves the spelling and aids in the distinct pronunciation of words. In order to make the different strokes and place the vowels, there must be some idea as to how the words should be pronounced.

At first the pupils become a little confused, but they have a consolation in the old proverb that "Only practice makes perfect."

During the first, second and third terms the various strokes, position of words, and the use of circles and hooks are learned. The typewriting also begins, and dictations are given the class to be transcribed on the machines.

"Last, but not least," is the fourth term, which is spent in reviewing and practicing for speed. Articles are selected by the individuals, written, and then read to the other pupils, who are required to take them down as they are dictated. In such work as this new words are brought before the pupils, and they are compelled to form new outlines very quickly.

The work in typewriting is as enjoyable as the shorthand. Long dictations are given by the teacher to be transcribed. No time is lost in the typewriting room, for every one is anxious to turn out as many pages neatly written as he possibly can in the short space of time given each day for the work.

It is interesting to watch the zeal and energy those have who are expecting to use stenography in business. But to those who have no such aim, it affords pleasure to take notes of their lessons, lectures, sermons, etc. It is well that all pupils who study stenography do not want positions, for if they did there would be more stenographers than the city could accommodate with work. Still the work is not only beneficial to those who strive for a position but to the others as well.

ANNA DAVIS,
12A Grade.

COOKING.

WHAT a sad world this would be if there were no cooks! Some wise person recognized the fact that much unhappiness would exist if the universe were to have an insufficient supply of cooks, so he suggested the idea of having a department wholly devoted to cooking in the I. T. S. Consultations were held, and when the school was built, a large, light and well ventilated room was set apart for a kitchen.

One corner is reserved for our dining table, china closet, ice chest and sideboard, while in the farther east corner stands a large range in which our baking is done. On the walls hang our charts of the beef, mutton, veal and pork, as well as those showing the composition of food. As a reminder we have our watchwords, "Order, Cleanliness, Economy," ever before us, and after each lesson the kitchen and all its appurtenances are restored to a perfect state of tidiness.

Six large desks, arranged for four at each, occupy the center of the room. A pretty white sink is attached to each desk, with pipes carrying hot and cold water. Across the desk is a row of four natural gas burners—the stoves for the individual work.

The requisite utensils for use in the kitchen may be found neatly put away in the tables. One must certainly be impressed with the order and cleanliness that prevails in our kitchen.

Wastefulness is especially guarded against, and much of the meat, crumbs, etc., that can not be used in one way, are saved and used in another. For instance, in our broiling lessons it is necessary to remove all the bones and pieces of fat; to use them we put the bones in soup, while the fat or suet is put to many well known uses. Bread crumbs are spread over the top of a dish of macaroni to make it brown prettily, and scraps of toast are laid on the bottom of a plate and scrambled egg is spread over them. Thus we are able to find some use for almost every particle.

Our lessons are conducted by instruction and demonstration on the part of the teacher, followed by individual practice on the part of the pupils. Our teacher plans, dictates and supervises, and we try to follow each direction so that our work may be as nearly perfect as possible. Perhaps it will astonish many to learn that we rarely have a failure.

Thus far we have cooked the starchy and proteid foods; have baked pies, breads and cakes; made custards, coffee, tea, cocoa, and served the usual six course dinners, yet each day brings with it new experiments, and we are made to realize to the fullest extent that cooking is quite as interesting as our other school subjects.

NELLIE O. MOORE,
12A Grade.

COOKING LABORATORY.

BOTANY.

MANY people ask, "Why do you study botany?" Most of the pupils will promptly answer that they took up the work in order that they might be brought into closer communication with nature and learn to understand her laws more thoroughly.

As only one term is devoted to the subject of botany, it will be seen that the knowledge acquired will be limited. But certain facts may be gained from the study of the text and the examination of the flowers, which afford much pleasure.

Botany is a very wide study. The one object the teacher wishes the pupils to gain is a better knowledge of plants, what they are, where they are growing, what they are doing, and to what great groups they belong. First, the study of the seed is taken up, then the root, then the stem and leaves, until finally the general knowledge of the plant is completed.

As a rule, four days of each week are devoted to laboratory work, at which time the different specimens are carefully examined, sketches are made on drawing paper and notes are placed in notebooks for future reference.

Much help in appreciating nature and training the mind is gained by the study of botany. It teaches the pupils to be close observers and to be quick in discovering the slight as well as the great differences in the plants they are studying.

Some do not like the idea of tearing the flowers to pieces and learning their parts, for they think it takes away some of their beauty. But to the student of botany this is not the case, for, in his opinion, it only adds to their grandness to be able to understand them.

Enough attention is given to the study of flowers to enable one to know at sight the most common flowers, such as the lily, rose, pink, snow foot, and violet, both in their cultivated and wild conditions.

Besides the regular work in the laboratory and the one recitation day each week, long tramps are taken out in the woods to search for specimens of the plants that have been studied. Of course some pupils will take more pleasure in these trips than others, yet each one profits by them, and through careful study is brought more closely into contact with nature and learns to love her more.

ANNA DAVIS,
12A Grade.

POLITICAL ECONOMY.

ONE of the ideals of a modern education is the ability to think fairly—without prejudice. Of all the subjects taught in high schools, political economy stands first in the development of freedom of thought.

In the study of political economy, one does not learn rules or even dry facts, as many suppose. Most economic principles are of vital importance in the theory of government. So there is an ever-increasing freshness attached to the study of economic theories. And, again, nearly every so-called law is open to discussion. For instance, some economists state, as a self-evident truth, that population tends to increase faster than the means of subsistence; while others explain the same thing by saying that man desires to subsist by the least possible exertion—an entirely different thing. Thus we see that there is a great diversity of opinion among economists, a feature which tends to make the student think for himself.

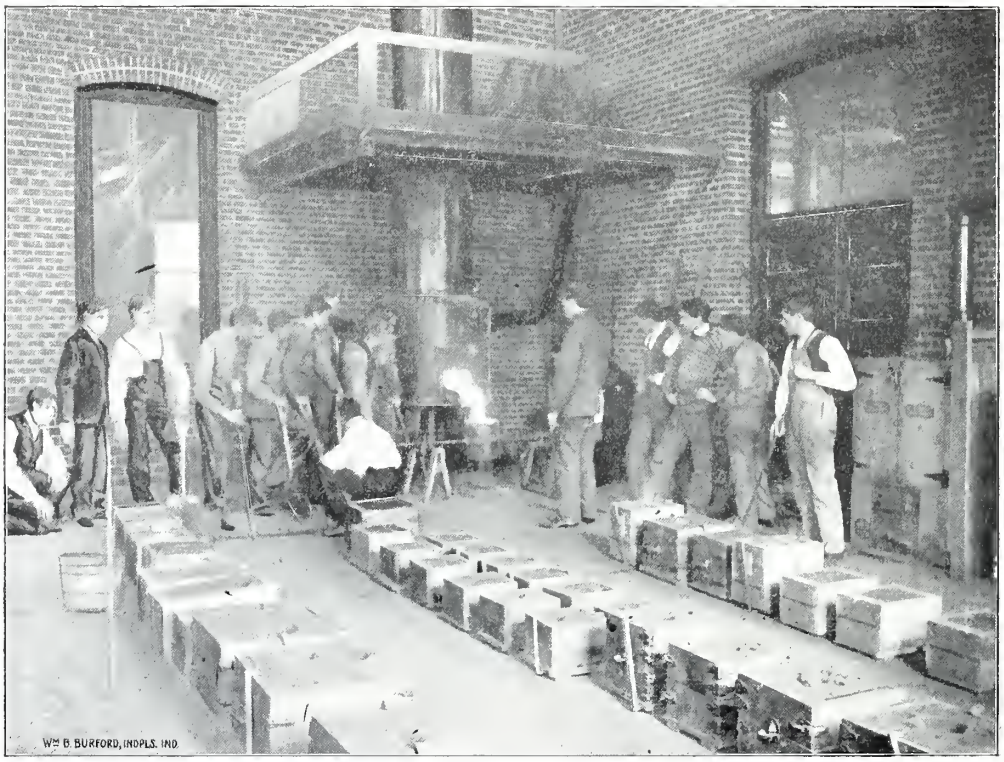
There is, in the minds of many, a blind passion which they call patriotism; but which, on investigation, proves to be an unreasoning adherence to some political

party. Political economy pushes principles to the front, ignoring party. It is a noticeable fact that few economists, that is, men who are authority on political economy, accept all the theories any one party advances.

The object of a representative government is to obtain the greatest good for the largest number of people. This can not be done unless the majority of the people understand the economic principles on which the government is based. The only way to get the people generally to understand this is to teach political economy in the high schools. Too few people attend college for it to be left to the colleges. Less, can we trust political speakers. Generally their own selfish aims induce them to explain the economic theories as best suits them.

The objection has been raised that it is too difficult for young students. Civil government describes and defines the powers of a government. Political economy develops and explains the principles on which these powers are based. Thus it follows that political economy is necessary for a thorough understanding of civil government. Few say that civil government is too difficult for high schools. The interest taken and the good work done by the class last term certainly ought to settle beyond dispute that it is practicable.

GEORGE BURKHARDT.



IN THE FOUNDRY. "RUNNING A HEAT."

PHYSICS.

THE work in physics is divided into four courses, two of which are prescribed and two elective. In Courses I and II the laboratory work and recitations occur on alternate days. They include an elementary study of mechanics, heat, sound, light, magnetism and electricity. The laboratory work has been much improved this year by the introduction of a new manual prepared by the instructors. The work set down here is especially suited to the age of the pupils who form the classes and also to the apparatus which the laboratories contain.

In Courses III and IV the work is nearly all done in the laboratory. The same subjects are studied as in the previous courses, but in a more advanced form. Greater accuracy is required, as no work is accepted that lacks more than two-tenths of one per cent. of being correct.

The first work in Course III consists of accurate measurements with micrometer and Vernier calipers and spherometers, for a training in scale reading. The instruments used can be read accurately to the hundredth of a millimeter.

For accurate weighing there are two short arm balances. These instruments are made of aluminum, platinum and nickle. The beam, though light, is made in such a form as to allow the least possible amount of spring. It is supported at its center by a knife edge of polished agate. The knife edge rests upon a flat surface of agate. At each end of the beam are similar bearings for supporting the scale pans. On the front of the beam is a double arm which resembles the beam of a grocer's scales, except that it extends in both directions from the center. A small weight, known as a rider, is so arranged that it can be conveniently placed at any point of the arm without opening the instrument case. On the top of the beam is a small adjustable weight by which an exact balance can be obtained.

When not in use or when weights are being changed, a milled hand-screw is turned which lifts the beam from the bearings and the pans from the beam. This protects the knife edges from all jar or unnecessary wear.

The balance is mounted on a polished black marble base, and is enclosed in a glass case with mahogany frame. The front of the case is arranged to slide up out of the way when material is being placed on the pans. A door is placed at each end for convenience in changing weights. This case protects the instrument from air currents and dust. A small amount of potassium hydrate is placed in the case to absorb all moisture. The base is provided with leveling screws and a spirit level.

The smallest weight used with the instrument is one milligram, but this does not limit the accuracy of the work to that amount. When the instrument is not exactly balanced, the long pointer fastened to the beam moves across a graduated scale. Much time would be wasted by waiting for the instrument to come to rest. To avoid this one notes the distance which the pointer moves to each side of the zero mark, and then by interpolation calculates the weight of the object correctly to the hundredth of a milligram.

This is only one of the sensitive instruments used in the laboratory. In the electrical work a galvanometer is used, which is so sensitive that a person walking about the room with a bunch of keys in his pocket causes the needle to swing back and forth. When an electric car passes down Delaware street, the current passing through the frame of the building on the way back to the power-house causes a deflection of the needle.

Several of the instruments are not only accurate but convenient. In many of the experiments it is necessary to time the vibrations of a pendulum or needle. It is difficult to count the vibrations and keep the time, too. To make this easier a clock is provided which rings an electric bell at the end of every minute, or every second, as the experiment may require.

There is also a stop-watch which is used when it is desired to find the time of a fixed number of vibrations. Pressing a button the first time starts the instrument, the second time stops it instantly, the third, returns the hand to the starting point. The watch reads in minutes and seconds and fractions of seconds.

In all the work in physics the student has to guard against errors. Several kinds of errors creep into the work. First, there are those due to the instruments. Second, the errors due to observation. Third, the errors due to prejudice, which are the most troublesome of all and the most difficult to avoid.

But there is still another kind of error. Not long ago a girl was found measuring the electrical resistance of a coil of wire, without either battery or galvanometer.

No wonder the instructor once said: "If resistance were in the form of a straight line, and the class had a foot rule, they couldn't measure it."

Ed. Haines.

PHYSICAL GEOGRAPHY.

IT seems to be a popular opinion among pupils before studying physical geography that it is a dry and uninteresting subject, but two weeks' work in the class usually convinces them that they have had a wrong idea. To them it is a source of great pleasure to be able to account for so many phenomena which before seemed such mysteries.

First, the relation of the earth to the other heavenly bodies is studied, which is merely a review of the geography work in the lower grades. This requires but a short time, and gives some knowledge of the attraction the different heavenly bodies have for the earth, and the position of the sun and earth at various times of the year.

The subject of physical geography is not exhausted, because there is only one-half year given to the study of the subject. A good idea is gained of the structure and condition of the earth in general and what may be expected of a certain place under certain conditions.

The countries are not studied separately except as illustration of a special rule. The winds, tides, ocean currents and such topics are studied in a general way and then applied to any part of the earth.

At the beginning of the year, each pupil in the class is given a certain country, or district, to study, and notes are taken applying general laws to that country. At the end of the term, his calculations are put into the form of a composition and read to the class. These papers teach something of each country, and save much time. They are very interesting, and show many deviations from the regular rules that govern the universe.

Other interesting features of the class-work are the papers and talks given on material taken from magazines and books from the library. A pupil takes an article describing the formation of some peculiar bay or promontory, cave or desert, and reviews it to the class, giving to all the benefit of the research of one pupil.

Then there comes the pleasure of trips out of the city, in which the pupils find examples of the work studied from the text-book, such as the results of erosion and weathering.

Emma King.

EXPLOSIVES.

AN explosion occurs when a solid or liquid body is suddenly converted into a gas or vapor. Prehistoric man may have discovered the first explosive by an accidental dropping of glowing wood on some ground encrusted with saltpetre. At least, explosives were known in the first records of history. The Chinese endowed them with such names as "*devouring fire*" and "*earth thunder.*"

They may be briefly classed as practical and theoretical. Probably the best known under the first head is gunpowder. Its forerunners were the powders used in the Chinese fireworks and the Greek fire of ancient history. The first crude gunpowder was made of equal parts of saltpetre, sulphur and charcoal. The proportions now existant in the United States are: Seventy-five parts saltpetre, twelve and one-half parts sulphur, and twelve and one-half parts charcoal.

The oxygen in the saltpetre, or nitrate of potassium, combines violently with the carbon of the charcoal to form carbon dioxide and free nitrogen. These are the principal gaseous products. The potassium is left in the solid residue, which is sixty-eight per cent. of the total amount of gunpowder. The sulphur has a great tendency to unite with oxygen at moderate temperatures. It greatly facilitates the explosion of the mixture. It also produces, from the heat generated, an expansion of the gases.

Gunpowder has many advantages as a military explosive. It is comparatively cheap, keeps well in a moderately dry place, and is quite safe. It deteriorates when wet, because a large portion of the heat necessary for combustion is used in evaporating the moisture. Many smokeless powders have been invented, but in general they are deliquescent, and do not keep well.

Guncotton is an eminently practical explosive. It is prepared by the action of nitric and sulphuric acids upon fine carded cotton. It is one of the nitro-substitution compounds; that is, the explosive transformation consists in replacing a certain portion of the hydrogen of the compound with an equal amount of nitrogen peroxide. Guncotton is easily exploded by friction, and can be detonated even when frozen.

But the most powerful practical explosive known is blasting gelatin. It is composed of ninety-three parts nitro-glycerin and seven parts guncotton. Nitro-glycerin is a powerful explosive in itself. The sale of it alone is illegal in the U. S. It is prepared by spraying glycerin into a tank containing a mixture of nitric and sulphuric acids. The result is an oily liquid containing a surplus of oxygen; that is, there is more oxygen than can intimately unite with the carbon or hydrogen present. So when a substance containing oxidizable constituents is added to it, the explosive power is increased. Blasting gelatin is once and one-half as explosive as dynamite, a compound of nitro-glycerin and powdered silica.

The fulminates are quite sensitive, the most practical being the fulminate of mercury. It is rather a connecting link between practical and theoretical explosives. It is prepared by dissolving mercury in concentrated nitric acid and then pouring the solution into alcohol. It is much used as a detonating primer, that is, as an agent to explode other explosives. Its action is extremely violent, bruising and tearing all adjacent objects, because of the instantaneous pressure produced.

Theoretical explosives are interesting as laboratory curiosities only. Several of the fulminates must be placed in this class. Fulminate of silver has been detonated by a loud footstep. Three of the most interesting of these explosives are the chloride,

the bromide, and the iodide of nitrogen. They contain neither carbon nor oxygen. Their extreme sensitiveness is caused by the slight affinity nitrogen has for the other elements. Chloride of nitrogen is a heavy orange-colored liquid, which explodes violently when brought in contact with various oily matters. The explosion is spontaneous when the compound is heated above two hundred degrees. Bromide of nitrogen is very much like the chloride. Iodide of nitrogen, or nitro-tri-iodide, a black powder, is the most explosive of the three, and action takes place at the slightest touch. The exact ratio of the constituents of these substances is not clearly established, owing to the danger attendant upon the experiments.

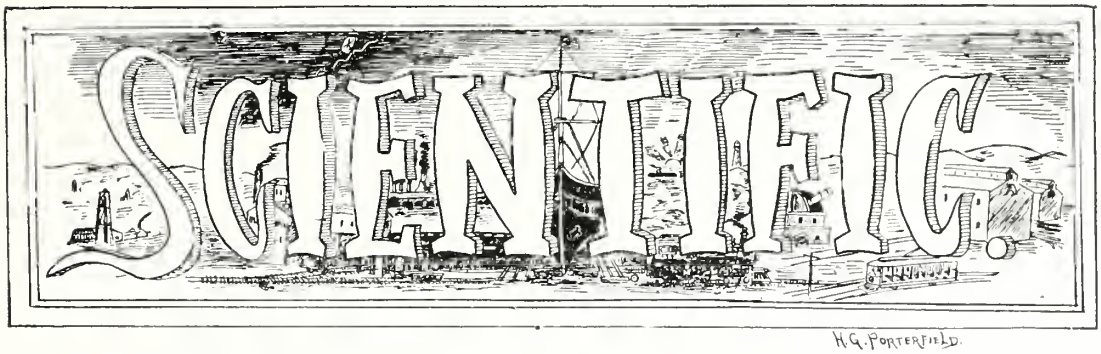
The problem of detonation has given rise to many theories. Wet, compressed gun cotton, failing to ignite when brought in contact with a red-hot iron, can be exploded by a detonating primer. Champion, Pellet and Abel accounted for this by the theory of the vibratory musical wave. When an explosive is nearing its critical state, the sudden emission of a certain musical sound will suffice to detonate it. Their explanation is that both substance and tone were vibrating. When a note was struck that responded to the vibrations of the substance, the equilibrium of the body was disturbed by the energy of the sympathetic sound waves, and explosion resulted.

Another subject for speculation is how to direct the energy of explosives. A quantity of dynamite will blow a hole through an iron plate laid flat on the ground. But if the plate is placed vertically, five times the first amount of dynamite is scarcely enough to produce an effect.

While theoretical explosives are of interest only to the student, practical explosives are almost indispensable in this age. The bow and arrow are picturesque weapons, but they are not to be compared with the modern bullet or cannon ball. Aside from this, explosives occupy a high place in reference to great engineering projects, the accomplishing of which would be practically impossible without them.

VALENTIA EGAN.

[References: "Modern Explosives," Lascelles Scott. "Gunpowder and Its Successors," Barber. "Modern Explosives," Munroe. Ency. Brit., Chambers, Appleton.]



NINETEENTH CENTURY HISTORY.

ALTHOUGH History III is an addition to our curriculum, expressions of commendation from the members of the class are not wanting. It is a very valuable subject, because of its relation to the great questions of the day. It includes a thorough study of the method of government of the various European nations, as well as recent political changes of the same. The great reform movement, commencing with the French Revolution, is followed throughout, and its moral, social and political results are especially impressed upon the minds of the students.

Incidentally, we have reviewed the great advancement along industrial lines and considered its relation to a corresponding social improvement.

Throughout the work, the subjects we have taken up and discussed are essential to an understanding of modern political and economic questions.

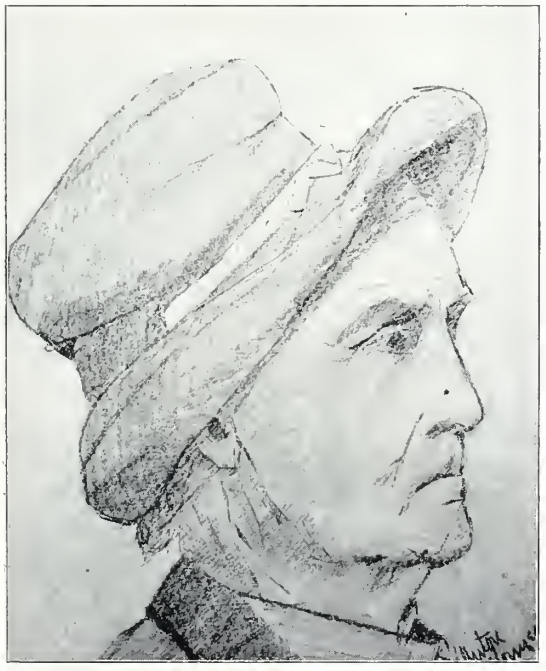
HUBERT H. ROGERS.

CHEMICAL LABORATORY.

PAUL SHANNON 98

THE BOHEMIANS ON THURSDAY.

ON THE wall is pinned a narrow slip of paper penciled over with sprawling characters, the subjects for the day's work. The sad majority gaze absentmindedly out of the window and wait for inspiration. A few pupils are grouped around the assistant, who is busily cheeking off names.



Over in the corner sets a brown-haired German girl with an old pencil box containing a conglomeration of art materials. With a sheet of pencil paper, a piece of charcoal and many deft finger smudges she works out her theme. "O, I want somebody to pose for me," she says suddenly, in a discontented tone. "I can't get my man to kneel." In a second she has her models, one as that most gracious queen, Elizabeth, and the other as Sir Walter Raleigh. Sir Walter had to kneel an unconscionably long time on the hard board floor, he says, and Queen Elizabeth grew quite tired of knighting him with a stick as big as a broom handle. But what is comfort compared to the interests of art?

In the other room a brown-eyed Scotch-Irish boy works. He is very fond of chivalry as a subject. In this pen and ink sketch, his specialty—Richard Coeur de Leon—flits airly from his would-be murderer. In that he quarrels with Austria in a well drawn group. Those groups are the envy of the sad majority.

"Did you see my sketches at the exhibit?" smiles a short little fellow, with German blue eyes and light hair. "Have you looked at my sketch-book?" he whispers, delightedly. Then he sits down and works with the medium nearest at hand, for he is versatile and does conscionsly good work in many lines.

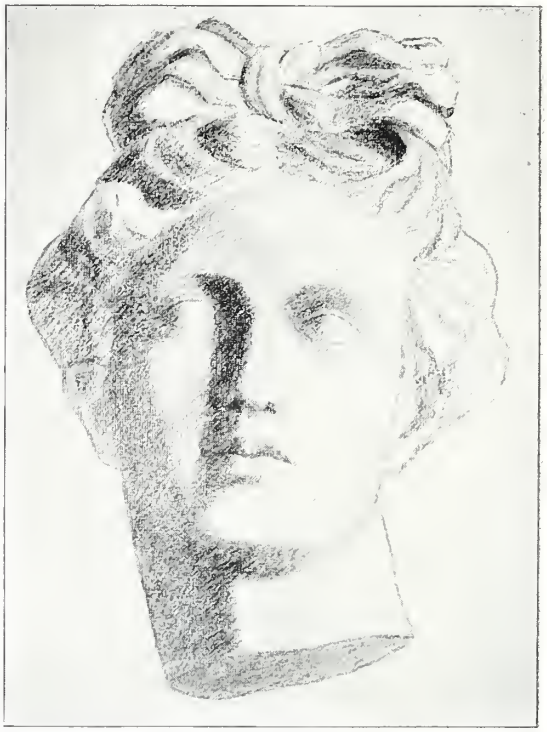
"Fine, aren't they?" says one girl to another, as they view some sketches on the wall. "I think he is very good on pencil

work. They say he has gone to war." "Has he? He drew that bicyclist mending his wheel on the road, didn't he?" "One of his best things," returns the other, and they pass slowly away.

The caricaturist enters the room. Most of his composition work is done in pen and

ink, but his lines are almost too fine and his shadows too closely worked. It is in chalk sketches he is at his best. There his strong treatment has full sway and his tramps and printing are silently revered by the girls whose natural tendencies that way end in a fashion-plate man and a few irregular letters.

"That tall, angular boy made a sketch of one of Mr. Stark's landscapes, didn't he?" queried one embryo artist of another. "Yes, and there is a charcoal study of him in the corner made by one of the girls." "Isn't it fascinating to watch him sweep those long curves over the paper?" and they watch in silence while the tall boy sketches in pencil, seemingly his favorite medium.



"Who is that pupil who always draws in charcoal?" whispers a boy in the other part of the room. "The one who makes women with hats down over their eyes, and tall, slim men?" "O, that's ——"

How unlucky that the bells should prevent the remainder of the sentence being heard!

MISCELLANEOUS

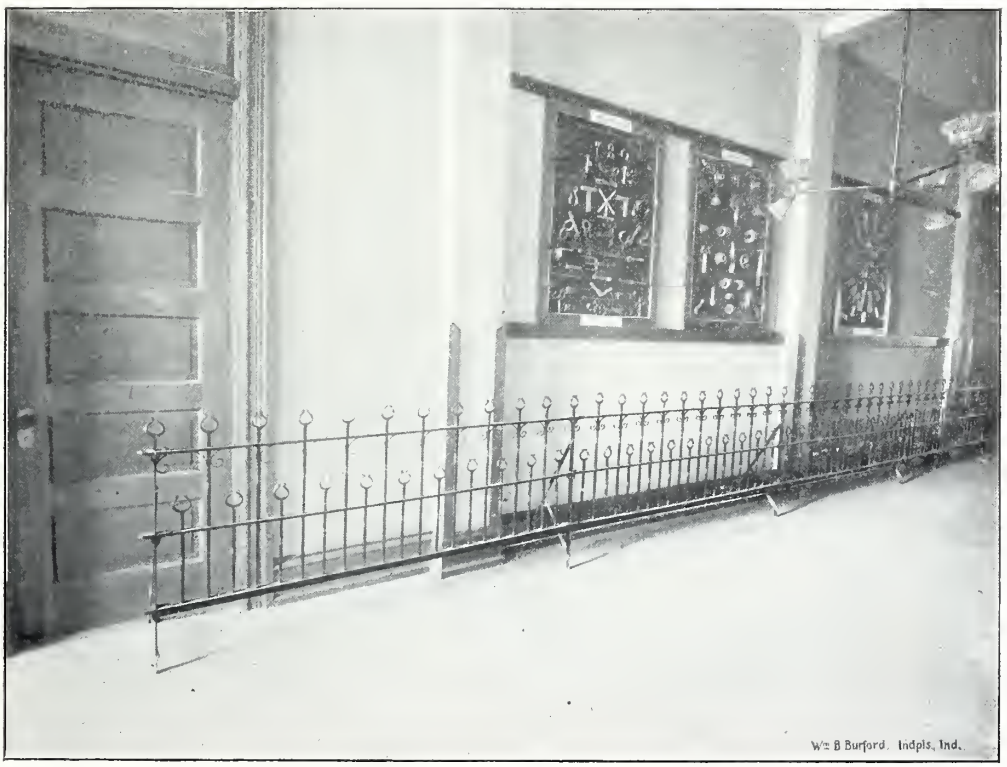
THE GERMAN ROOM.

THOUGH our session-room walls are hung with pictures, the tables and windows made beautiful with flowers, and the book-cases well filled, yet the session-rooms are too large ever to seem home-like to me.

I prefer the smaller ones, like the German room. There Miss Sturm reigns supreme, a very gentle ruler, among her books and flowers and the sunshine which floods the room each morning. Although there are not so many pictures here as in the other room, yet the "Beatrice Censi," with her sweet, sad face, fully makes up for this.

Here are also portfolios of scenes from all over the world and one may enter the fabulous land of fays by a knowing peep into the legend-books written in that sturdy tongue of the no less sturdy Germans.

MARGARET KINNAN,
Eng. 11 B.



SECTIONS OF WROUGHT IRON FENCE, MADE BY STUDENTS IN THE SECOND HALF YEAR OF THE COURSE IN FORGING.

I. T. S. ORCHESTRA.

THE ORCHESTRA.

ONE of the most distinguished organizations of the school is the orchestra. It started about three years ago with ten members and has grown until at the present time there are eighteen.

From time to time a marked improvement has been seen in the quality of the music played. At first its entire repertoire consisted of a few waltzes, two steps and one or two small overtures. Since then many heavier overtures and selections from operas, such as "The Bohemian Girl," "Martha," "Der Freischütz" and "Norma," besides all the latest popular music, have been added.

During the singing hour every Wednesday the orchestra is of great service as an accompaniment to the singing of the school, and its own selections form a popular and pleasant variation to the regular program. The aid of the orchestra is always requested for the class entertainments, and several times it has been invited to play outside of the school, but since it is strictly a school organization, Mr. Emmerich, the director, has always declined.

Besides being a pleasure to the school, the orchestra is a great source of profit to its members. In first taking up a composition particular study is given to discovering and interpreting the *motif*. The variations in tempo and sound volume are minutely followed. And an effort is made to establish a sympathetic harmony between the different instruments.

That the orchestra is a success may be seen from the length of time it has been in existence.

The members and their instruments are as follows:

FIRST VIOLINS.

Edgar F. Kiser, Harris H. Gumbinsky,
Albert Richt, Bergen Plummer.

SECOND VIOLINS.

Albert Kahn, Zella Reynolds,
Lorenz Schmidt, Leslie Maxwell.

FLUTES.

Walter Kipp, Otto Miller.

Piccolo ..... Emil De Luse
Viola ..... Frank Martin
Cello ..... Theo. Vonnegut
Trombone ..... Alfred Worth
Cornet ..... James Ryan
Basso ..... August Goth
Piano ..... Edna Clippenger
Drum and Cymbals ..... Frank Sloan

HARRIS H. GUMBINSKY.

ROOM E.

ROOM E, the silent; Room E, the mighty; Room E, the unpretentious; Room E, the all-powerful; Room E, the home of industry; Room E, the abiding place of great men. No musical attempts to disturb the quiet of our opening hour; no tragic recitations; no magic lantern shows, and yet, O Plebians, we have Room Notes. If you wish to learn the doings of Room E, read the news of the Training School, for if *we* do not make the school history who does? We have in our dominion the MIND AND HAND—its managers. But we *do* hate to boast; above all we are very modest. Though we ourselves are always well behaved (ask Mr. Grumman if you don't believe it).

THE I. T. S. SENATE.

THE Senate was reorganized on March 4, 1898, with Mr. Winston as critic. The members are enthusiastic and determined to make it a success.

The election proved unanimous. The executive officers were Senator Hale, president, and Senator Hanna, secretary. Senator Fairbanks was elected sergeant-at-arms. Rules were reported and adopted,

and the Senate went to work with great vigor. The President was put on his mettle to maintain order, but, as the rules are very stringent on this subject, he succeeded admirably.

Senator Hoar introduced a resolution providing for Cuban independence. He spoke at great length, and was ably supported by Senator Thurston. The latter gentleman was of the opinion that no true American could vote against it. Senators Allen, Butler and Stewart opposed, nevertheless, and the resolution was defeated by a large majority.

A bill for an appropriation of $50,000,000 for national defenses was favorably received.

Further bills before this body are bills providing for the "free coinage of silver at the ratio of 16 to 1," and one providing press censorship.

THE C. C. C.

THE Chatty Culture Club has been organized by the members of the "February Class of 1900" to promote a love for current literature and for social enjoyment. Each member is obliged to take part in the program as often as is possible. The programs generally consist of two or three musical selections, a magazine story and articles pertaining to the events of the day. Often there are original stories or rhymes. Two of the members have given long and interesting talks. One subject especially pleasing was "Charles Gibson's Drawings of the Characters in Dickens."

A MEMBER.

THE JUNIOR LITERARY AND DEBATING SOCIETY.

THIS society was organized three years ago, and has been controlled by successive junior classes down to the present. This year there were quite a number of 12 Bs in the society. The right of membership was extended to them because there was no senior organization.

The executive officers and the members of the program committee hold their positions for six successive meetings

By shortening the term of office, it was found that a greater number of members are given the opportunity of serving the society and of feeling the responsibilities of the leadership.

At the beginning of this year, readings from Carlyle's "Heroes and Hero Worship" alternated with debates. This justified the name, "Literary and Debating Society." Recently the Carlyle readings were dropped and an occasional day devoted to authors of the day.

The work on the debates has been very good. The rules of the society prohibit the use of papers on the part of the speaker. Great freedom while addressing an audience is thus secured. The general discussions are taken part in by a great majority of those present.

The society contains more than thirty members; but the significant thing is the regular attendance. With Miss Foy as critic, the club has made its influence felt along several lines, especially in English. The high standard to which it has been raised by former classes is sustained by the present class. THEO. F. VONNEGUT.

A MORNING AT MARKET.

INDIANAPOLIS possesses one of the finest of market places. Grocers, butchers and bakers have rented most of the inside stalls, where they make a display of their goods, while the gardeners have stands on the sidewalks.

An early morning visit to market is well worth the effort and the loss of a morning nap. Those who have stalls in the market

must be ready to serve the early customers by five o'clock in the morning, although the rush does not come until half past eight.

"Matcheez, matcheez, five cents; three boxes for a dime."

"Here you are, lady, nice bananas, oranges."

"Fresh butter an' eggs here, here, very cheap."

"Good morning, what can I do for you to-day?"

"Oh, get off my feet!"

"Yes'um, the best in the market," and "No'um," were the sounds that fell on our ears.

We stopped in front of a four-legged stand on which was exposed for sale rolls of moulded butter. Some were decorated with figures of warriors or saints, while on one roll was a perfect face.

"Fresh, ma'am?" asked a lady, as she took out one of the eyes with her finger.

"We churned it this morning."

"All this butter!"

"Yes'um, we're early risers in the country, and are working while you city people are sleeping."

It is now half-past eight. There is a rattle of wagons, a rumble of cars over the streets, and business is begun. There is not much work between eleven to five o'clock. The crowd is going away, and in a few hours the market will be quiet.

Bertha Seitz,
9A English.

OUR BOYS AT THE OPERA.

With an "I," with a "T," with an "I. T. S.,"
We're the boys that'll make 'em guess;
Hurrah for the red, hurrah for the white,
Training School, Training School, out of sight.

Such yells as this caused the Soldiers' and Sailors' Monument to echo and re-echo as the enthusiastic crowd of loyal patriots from our school gathered at the south steps of the monument preparatory to forming the line and marching to the Opera House, where the Training School and High School were to give the opera "Iolanthe." With more yells, and with canes adorned with the glorious red and white of the I. T. S. waving in the air, the long line was formed and marched toward the Opera House.

It entered the theater, the leaders bearing the chosen mascot, Fred Soehner, gay with the I. T. S. colors, at its head. The boys took their seats at the front and fairly swept away all opposition by their hearty yells and the formidable array of ribboned canes. Under the masterly leadership of Albert Kahn and Arthur Meng the boys from the Training School took the audience by storm, and, next to the opera, were the center of attraction throughout the evening. Mr. Emmerich and all of the teachers of the I T. S. were remembered in the yells, and, contrary to a pessimistic prediction, the boys made a good impression and did not disgrace the faculty.

It may be noted that the Training School has not been in the habit of aping college ways, and that this movement arose only from a superfluity of school pride and patriotism.

Herman A. Helming.

THE KODAK.

SINCE last September the June Class of '99 has had a room paper called the Kodak.

There were several columns, editorial, literary, scientific, athletic, personal, poetry, criticism, wit and humor, left in charge of editors elected by the class. The material for the paper was first handed to Miss Foy, who read and corrected it and then handed it to the editor for whom it was written. On the Monday following the day in which

all material had to be in, the different columns were read by their editors before the class during the morning and noon exercises.

Some of the columns have of late been given to the management of the 9B's, who are seated in our room. In some instances they have covered themselves with glory, much to the humiliation of the older pupils. All the contributors feel the good effects of this miniature journalistic work, and have decided to take a step forward.

HERBERT J. MCDADE, '99.

ROOM G BICYCLE CLUB.

THE June Class of '99, in Room G, organized a bicycle club, April 7. Eighteen boys and ten girls became members. Three officers were elected, as follows:

Captain, J. Wilford Sands.

1st Lieut., Delos Alig.

2d Lieut., Miss Foy.

The club took its first run Saturday afternoon, April 16, to Broad Ripple, on the bicycle path. The run was an enjoyable trip, as it was an ideal "bicycle" day.

Runs will be made to various neighboring villages soon.

THE JUNE, '99, LITERARY CLUB.

ON Saturday evening, April the 9th, the members of June, '99, Class met at the home of Miss Foy, to organize a club to be known as "The June, '99, Literary Club."

The purpose of this organization is to further the work in English, and to cultivate among the members more freedom in discussing and criticising a literary production than can be gained in the school room.

The club took up Shakespeare's "Julius Caesar" as its first study and began its work with a membership of twenty-five. Meetings are held on Friday evening of each week, at the homes of the different members.

The second meeting was held Friday evening, April the 15th, at the home of Robert Wildhack, in Broadway. On that evening the club under the leadership of Miss Foy, completed the discussion of the first act of Julius Caesar. The members are all very much interested in this new departure, and to judge from the work done at the first meetings the club will be a success.

M. J. R.

THE SENIORS.

"It may be that these fragments owe alone
To the fair setting of their circumstances—
The association of time, scene, and audience—
Their place."

Claude Compton:

"All the world's a stage."

"O thou bright and shining *star!*"

Bertha Borst:

"Golden tresses wreathed in one."

Hugh K. Thatcher:

"Let not thy angry passions rise."

"Dark, but comely."

Samuel Watkins:

"A bettre felawe sholdne men noght fynde."

Hubert Rogers:

"Beauty's ensign yet is crimson in thy lips and in thy cheeks."

Ida Alfree:

"Divinely tall, and most divinely fair."

Harris Gumbinsky:

"So wise, so young, they say, do never live long."

Felix Ballard:

"And still the wonder grew
That one small head could carry all he knew."

Laura Buehler:

"Blue were her eyes as the fairy flax."

Irving Blue:
"He coude songes make and wel endyte."

Norton Fisher:
"The comliest youth was he."

John Engelke:
"Learning is but an adjunct to our self."

Margaret Drinkhut:
"Keep for the *young* the impassioned smile shed from thy countenance."

ATHLETICS.

THE Athletic Association is undoubtedly the most important organization in the school. It had its humble beginning in the spring of '95, with about fifteen charter members. Its purpose was to take charge of and support all practicable forms of athletics in the I. T. S. John Goode, Norton Fisher and Rodney Hitt have acted as President of the Association.

The most enthusiastic meeting ever held by the Association was when the baseball captain for '98 was elected. Geo. Kerr, June, '98, was unanimously elected captain. Ralph Young, June, '00, was elected manager, but resigned when the team was united with the High School team.

In view of the good work already done by the A. A., every boy in school should take pride in belonging and assisting in its undertakings.

Baseball Team of '97.

The baseball season of '97 was a very successful one. Only one defeat was sustained, and that by a professional team supported by the U. of I. Among the teams defeated were those of Purdue, Wabash and Franklin Colleges. This record gives the team an equal claim with DePauw for the State championship.

The team was composed of O. Queisser, c.; F. Queisser, p.; McIntosh, 1st b.; Fisher, 2d b.; W. Bronson, captain and s. s.; Kerr, 3d b.; Parker, l. f.; Goode, c. f.; F. Bronson, r. f.; Busher and Traub, substitutes.

Baseball, '98.

On account of the poor outlook for baseball in both I. T. S. and I. H. S., it was decided to have one team to represent the two schools. George Kerr, of I. T. S., was captain, and Elmer Eckhouse, of H. S., manager.

With only a few days' practice the team played DePauw University. The score stood: DePauw, 15; I. T.-H. S., 4. The following Saturday the College Avenue team was defeated by a score of 6 to 5. Every man on the team is anxious for another game with DePauw, in which they hope to turn the tables.

The consolidation of the two teams will, we trust, be no small factor in bringing about good fellowship between these two Indianapolis schools.

Football, '97.

The I. T. S. was represented by an excellent team for the season of '97. Although the team of '96 made a better record, they did not have as skillful opponents as did the team of last year. DePauw, Indiana University and Franklin were played. The boys received much praise for their good work. Bates, Jones, Sheideler, Krauss, Neidhamer and Fisher acquitted themselves like men.

A second team was organized, which was almost as strong as the first team. Several games were played, and a good record made. Hahn, Coval, Williams, Hotz, Kerr and Buscher did excellent work in all the games.

A SHRILL little voiee sang elearly in the next room. It was the "Sunshine Song" of Kindergarten fame. It was a sunshiny morning, but it seemed as though the night's sleep had been hardly two hours long to the man in the other room. He dozed drowsily off, only to be repeatedly awakened by the high-keyed singing. "I never go to sleep, dear ehild," sang the little voice ealmly. "Neither do I," said the man, savagely, "I never have a ehanee." And he glared fiercely in the direetion of the uneonscious singer.

THE groeer smiled affably as he talked to the thin little girl, and the fat little girl. "You ean't beat Mary running," he said, teasingly, to the latter. "Yeth I can," lisped she emphatieally. "Well, now, look here. You walk up to the eorner and raee back here, and if you beat, I'll give you an orange." The party of the seeond part hesitated a moment as she made a hasty ealeulation. "O, I wouldn't wun for only one orange. Will you give me two?" she asked, finally. "Um—well, yes," said the groeer. "All right," said the little girl, with a eonfident look. "Come on, Mary."

The two started walking to the eorner. When they were at a safe distance, the small and plump contraetor whispered, "Now, I'll tell you what, Mary; you let me beat, and nen I'll give you one of the orangeth. Thee?" Mary saw. And when they ran, her lagging behind was shamelessly self-evident. Needless to say the small briber eame in a triumphant first. The groeer's eyes twinkled as with a would-be-innocent look the winner of the raee handed Mary her pay.

SCENE I.

Robert (aetat. five): "Thwat makes dat baby ewy so mueh?"

Nurse: "She is eutting her teeth, dearie. Can't you see the little white things in her mouth?"

Exit Robert mueh edified.

SCENE II (five minutes later).

Enter Robert in great exeitement.

R.: "I know fy dose little ehiekies, thwat we has just got, goes 'peep!'"

Nurse: "Why?"

R. (in danger of immediate explosion): "Dey is cuttin deir tails; I saw 'em."

DEFENSE OF THE COLONIAL PADDLE SYSTEM.

What a host of recollections
Rise before my quickened eye,
As you speak of old connections
'Twixt my pater's stick and I.

Have I heard the pattering shingle?
Well, I wonder! Yes, I guess!
And it still brings up a fluttering
'Neath the lapel of my vest.

We are told, and must believe it,
Though at times we can't conceive it,
That to every lowering cloud
There's a lining made of silver,
Which some day will cast its shroud,
And with its shining, bright effulgence
Cause our joy to shout aloud.

Oft 'tis hard to see a moral
In each story that is told,
Yet we'll always find the coral
If for it our dive is bold.

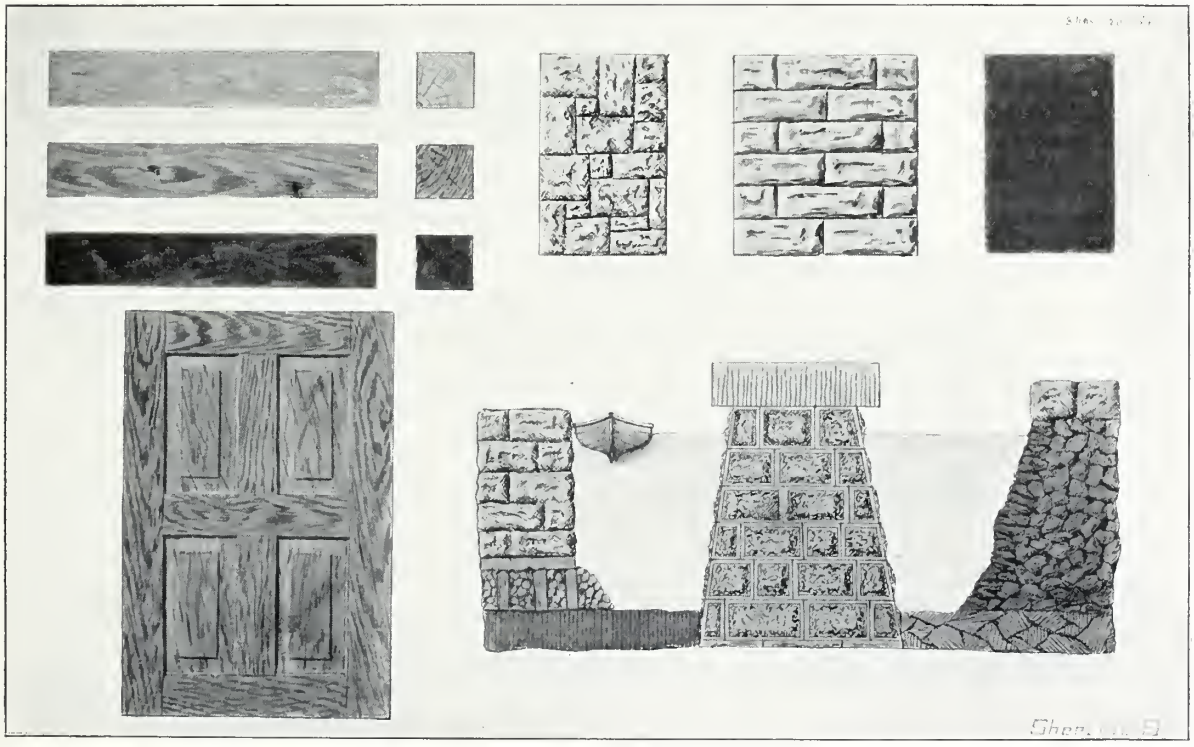
Now, it used to be,
When I crossed my daddy's knee,
Long and deeply did I ponder
Why my parent was not fonder
Than he really seemed of me.

To-day the only memories
That about the shingle cling,
Though in those days far from pleasant,
Now have lost their awful sting.

Now, as then, I strongly feel,
Yet with a different sense.
Though 'tis true he made me kneel,
He committed no offense.
For the bees that he engendered,
Though they stung, have honey rendered,
And I see and recognize
That therein the secret lies
Of a healthy constitution
And a sound morality.

So, to-day, I hope and pray,
That, though ages pass away,
Ne'er may come the dissolution
Of that good old institution,
Of the helpful hickory.

JOHN A. DYER, Feb., '97.



REPRESENTATIONS OF STONE AND WOOD, ORIGINALS IN WATER COLOR.

Newman,
Green & Co.'s
Transfer,

J. B. NEWMAN.

Rubber Tire Livery,
Hacks, Coupes and
Baggage

113 AND 115 W. MARKET ST.

TELEPHONE 1036.

$50 Patee Bicycles AT $35

Are the best value ever offered for the money. First-class equipments —fully guaranteed for the season of '98.

We extend to you a cordial invitation to call and examine our line.

INDIANAPOLIS CYCLE COMPANY

110 N. Pennsylvania St.

NEW GROUND FLOOR GALLERY.

Medallions, Pictures and Art Goods of All Kinds.

PICTURE FRAMING OF ALL KINDS.

Special Prices to Graduating Classes.

J. H. CLARK,

LEADING PHOTOGRAPHER.

37 E. Washington St.

CARBONETTE WORK A SPECIALTY.....

The Indiana Woman

Is the handsomest weekly in the country. Over $100.00 worth of beautiful engravings each week. Read our "Indiana Club Women," "Prize Photo Contest," "Bicycle," and other departments. Send for sample copy.

THE INDIANA WOMAN,
Indianapolis, Ind.

The Illustrations are all made by the Indiana Illustrating Co., corner Illinois and Market Streets, the largest engraving house in the State.

VEGA

GUITARS, MANDOLINS, MANDOLAS

Are Warranted for Five Years.

CASH OR PAYMENTS.

Carlin & Lennox

5 to 9 E. Market St.

You Will Make No Mistake

In Having Your Work Done by . . . .

The Excelsior Laundry.

Telephone 249 . . .

And we will Send For and Deliver It.

WULSCHNER & SON

TRADE MARK Regal

Manufacture "Regal" Mandolins and Guitars, which are the very finest made in the country. See them before buying.

128-130 N. Pennsylvania St.

Special Rates on PIANOS to Schools

Geo. Mannfeld & Sons,

...TAILORS...

107 N. Pennsylvania St. INDIANAPOLIS.

Andrews The Tailor

Suits $15 and Up. Trousers $4 and Up . . . . . TO ORDER.

CORNER WASHINGTON AND ILLINOIS STS. Occidental Hotel Corner.

The H. Lieber Company,

In Their New Location,

24 W. Washington St.,

Afford the best display of

Pictures and Art Goods

In the State.

Headquarters also for

Amateur Photographic Supplies and Artists' Materials.

Flowers

...FOR...

Commencements, Weddings,

And

Other Occasions.

THE BEST AND MOST REASONABLE IN PRICE IN THE LAND.

Bertermann Floral Co.,

241 Massachusetts Avenue.

(Old Location.)

Visitors Always Welcome to Our Conservatory.

TELEPHONE 840.

The Medical College of Indiana.

Department of Medicine of the University of Indianapolis.

THE Twenty-Eighth Annual Commencement Exercises of this well-known institution took place on March 29, 1898, with a class of seventy-nine. The Faculty desires to call attention to the following points in connection with the school: The careful and thorough grading of the classes (this is not, as in many schools, merely in theory, but is complete and absolute); the classes never by any chance hear the same lecture repeated; the system of monthly examinations, the only method fair alike to teacher and student; a building specially erected for and owned by the college, containing ample room and well stocked with teaching facilities; a dispensary in college building, well patronized; clinic rooms at hospitals, new and modern; women admitted on same terms as men; a four-year course, rigidly administered, and finally, a high grade of intelligence in its classes. The last graduating class contained men from nearly every literary and normal school in this State, and from many in neighboring States. Of the applicants at the opening of last term less than 7 per cent. required a preliminary examination. For all particulars address the Dean,

JOSEPH W. MARSEE, M. D.,
106½ East New York Street, Indianapolis, Ind.

Indiana Dental College.

Department of Dentistry
of the
University of Indianapolis,

Offers exceptional facilities for the acquirement of a thorough education in the science of Dentistry.

For catalogue and particulars, address

INDIANA DENTAL COLLEGE,
131 East Ohio Street. Indianapolis, Ind.

INDIANA LAW SCHOOL

OF THE

University of Indianapolis.

FACULTY.

BYRON K. ELLIOTT, President.
WILLIAM P. FISHBACK, Dean.
ADDISON C. HARRIS.
CHARLES W. FAIRBANKS.
JOHN R. WILSON.

Course of two years.

School year begins Tuesday, October 4, 1898, and ends Wednesday, May 24, 1899.

Second term begins January 3, 1899.

Corps of lecturers numbers twenty-four.

Diploma admits to bar of United States and State Courts.

For announcement, catalogue, etc., address the Dean,
W. P. FISHBACK, INDIANAPOLIS.

Butler College.

DEPARTMENT LIBERAL ARTS
UNIVERSITY OF INDIANAPOLIS.

Competent instructors, modern methods, thoroughly equipped laboratories, well selected libraries, commodious reading-rooms, gymnasiums furnished with requisite apparatus, etc., etc.

For information, address,

SCOT BUTLER, President,
IRVINGTON, INDIANA.

N. B.—Summer School Opens June 27.

THE NEW YORK STORE.

(Established 1853.)

J. S. Johnson

Rides a **Lenox** Unsolicited

—and you know that John S. Johnson knows a good wheel when he sees it. He says the Lenox is equal to any mount he ever had. It's a beauty, too!

Lenox Road Wheel, = $45.00
Lenox Racer, = - - - $59.00

We are also agents for the famous **Victor** and **Victoria** Wheels, **$40.00**—**Navarre** Wheels, **$25.00** and **$35.00**—and **Elfin** Wheels (juvenile), **$25.00.**

Bicycle Sundries and Repairing at the very lowest prices.

Bicycle Department Open Evenings—Entrance through Stevenson Building.

Pettis Dry Goods Co.

THIS ANNUAL WAS PUBLISHED BY

Wm. B. Burford,

MANUFACTURING STATIONER.

Printing, Lithographing, Engraving, Blank Books, Photogravures, Half Tones, Legal Blanks, Stationery, Cards and Invitations.

Office—21 W. Washington St.
Factory—17 to 23 W. Pearl St. } INDIANAPOLIS.

Study Law!

Ambitious young men may now prepare for admission to the bar without neglecting their present occupation.

Your Evenings Only.

The necessary legal education may be obtained at the evening sessions of this school, which guarantees as thorough legal training as may be had at any law school in the West. Your Diploma will admit you to the bar. Faculty of instructors and lecturers composed of some of the most eminent judges and lawyers in the State.

The school studies the conveniences and advantages of its students.

Terms easy. Call at office or write for full particulars.

Indianapolis College of Law

THE WHEN BUILDING.

TAKE ELEVATOR.

Dew-ey

Invite everybody who appreciates good style to inspect our stock?

We do.

Come and see what a handsome Suit we can make at

$20.00

and upward.

Kahn Tailoring Co.

22 and 24 E. Washington St.

Purdue University,

LA FAYETTE, INDIANA.

The Indiana Institute of Technology.

FALL TERM BEGINS SEPTEMBER 14, 1898.

WOMEN ADMITTED TO ALL DEPARTMENTS.

SIX SCHOOLS . . . .

Four-year courses, leading to the degree of *Bachelor of Science*, in

I. **Mechanical Engineering.** Including:

(*a*) Shop Practice.
(*b*) Machine Design.
(*c*) Transmission of Power.
(*d*) Hydraulic Engineering.
(*e*) Steam Engineering.

II. **Civil Engineering.** Including:

(*a*) Shop Practice.
(*b*) Bridge Engineering.
(*c*) Railroad Engineering.
(*d*) Hydraulic Engineering.
(*e*) Sanitary Engineering.
(*f*) Architectural Engineering.

III. **Electrical Engineering.** Including:

(*a*) Shop Practice.
(*b*) Machine Design.
(*c*) Electrical Engineering.
(*d*) Dynamo Construction.
(*e*) Installation and Management of Electrical Railway and Lighting Plants.

IV. **Agriculture.** Including:

(*a*) Science and Practice of Agriculture.
(*b*) Horticulture.
(*c*) Entomology.
(*d*) Agricultural Chemistry.
(*e*) Veterinary Science.

V. **Science.** Including:

(*a*) Biology.
(*b*) Chemistry.
(*c*) Physics.
(*d*) Industrial Art.
(*e*) Sanitary Science.
(*f*) Pre-Medical Course.

VI. **Pharmacy.** Including:

(*a*) Pharmacy.
(*b*) Chemistry.
(*c*) Materia Medica.
(*d*) Prescription Practice.
(*e*) Botany.

In Pharmacy a two years' course is offered. All courses include fundamental training in Mathematics, Modern Languages, Physics, Chemistry and Drawing, as well as a large amount of laboratory work in general and special lines, and are open to men and women alike.

Examinations for admission will be held at the University June 5 and September 12, 1898.

High school graduates are admitted upon certificates. Those who can show proficiency in any of the subjects required in the Freshman Class will be given credit therefor, and will thus be enabled to take advanced standing.

Tuition is free to all residents of Indiana. The necessary expenses for one year are from $150.00 upward. A Gymnasium Class, under a competent physical instructor, and the literary and scientific societies are open to all students.

For catalogues and general information, address,

JAMES H. SMART, President,
LA FAYETTE, INDIANA.

Fine Diamonds. Fine Jewelry.

Julius C. Walk,
& Son,

Fine Watches. Sterling Silver.

Indiana's Leading Jeweler,

12 East Washington Street,
INDIANAPOLIS.